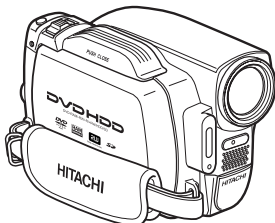


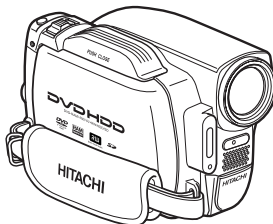
# Instruction Manual (English)

**HITACHI**  
Inspire the Next

## DZ-HS903A DZ-HS803A



**DZ-HS903A**



**DZ-HS803A**



DVD+ReWritable



Thank you for purchasing this Hitachi Camcorder.  
Please read this Instruction Manual to understand its proper use.  
Before opening the CD-ROM included with this product, please read p.182.  
After reading the Instruction Manual, store it safely.

The Instruction Manual contains an illustration of the DZ-HS803A on the cover page only.

**Introduction**

**HDD/DVD/Cards  
Battery Pack**

**Let's Get Started  
Recording — Viewing**

**Various Recording  
Techniques**

**Dubbing on DVD**

**Editing**

**Viewing on the  
Other Devices**

**Connecting to  
Your PC**

**Additional  
Information**

**QUICK GUIDE**



This manual was printed  
with soy based ink.

Printed on recycled paper  
Printed in Japan OY-K (I)

# Important Information

## For Your Safety

*The power switch turns the camcorder on and off, leaving the date/time feature unaffected. If the camcorder is to be left unattended for a long period of time, turn it off.*

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.**

**WARNING: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.**



**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, BE SURE TO USE THE SPECIFIED AC ADAPTER/CHARGER (DZ-ACS3).**

The camcorder and AC adapter/charger have the following caution marks.



### CAUTION

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN.  
NO USER-SERVICEABLE PARTS INSIDE.  
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

## Identifications of caution marks



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.



This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully to avoid any problems.

## Precautions

**WARNING:** Many television programs and films are copyrighted. In certain circumstances, copy-right law may apply to private in-home videotaping of copyrighted materials.

The liquid crystal display (LCD) panel is made by highly precise technology. More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This does not indicate a fault as the LCD panel stretches the limits of current technology.

### CLASS 1 LASER PRODUCT

#### CAUTION

This product contains a laser diode of higher class than 1. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

Avoid using and storing the battery pack in places subject to direct sunlight, high temperatures, or near a flame source.

**Warning:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Caution to the user:** Changes or modifications not expressly approved by the manufacturer void the user's authority to operate the equipment.

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SD logo is a trademark.

Other company names and product names listed are trademarks or brand names belonging to each individual company.

# IMPORTANT SAFETY INSTRUCTIONS

- 1** Read these instructions.
- 2** Keep these instructions.
- 3** Heed all warnings.
- 4** Follow all instructions.
- 5** Do not use this apparatus near water.
- 6** Clean only with dry cloth.
- 7** Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8** Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9** Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10** Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11** Only use attachments/accessories specified by the manufacturer.
- 12** Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13** Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14** Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15** Do not drip or splash liquids onto the camcorder or place the camcorder near objects filled with liquid such as vases.
- 16** Use the equipment (AC adapter/Charger) near a power outlet with easy accessibility.
- 17** Do not cover the camcorder with a cloth while using nor use the camcorder in a ill-ventilated space such as in a box or bookcase.



S3125A



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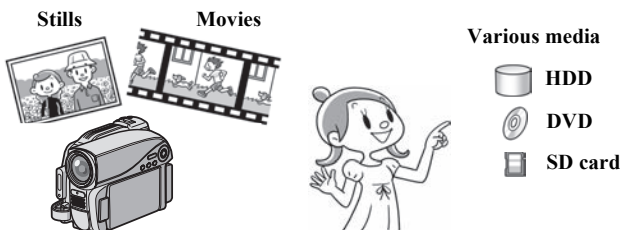
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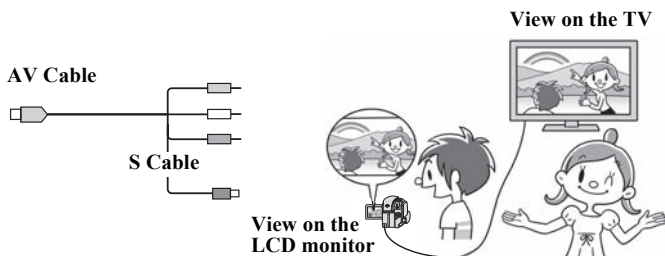
**This camcorder makes all of the following possible!**

**Record movies and stills with this one device!**



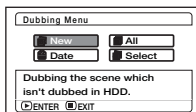
**After recording**

**View on large screen by hooking up the camcorder to a TV!**



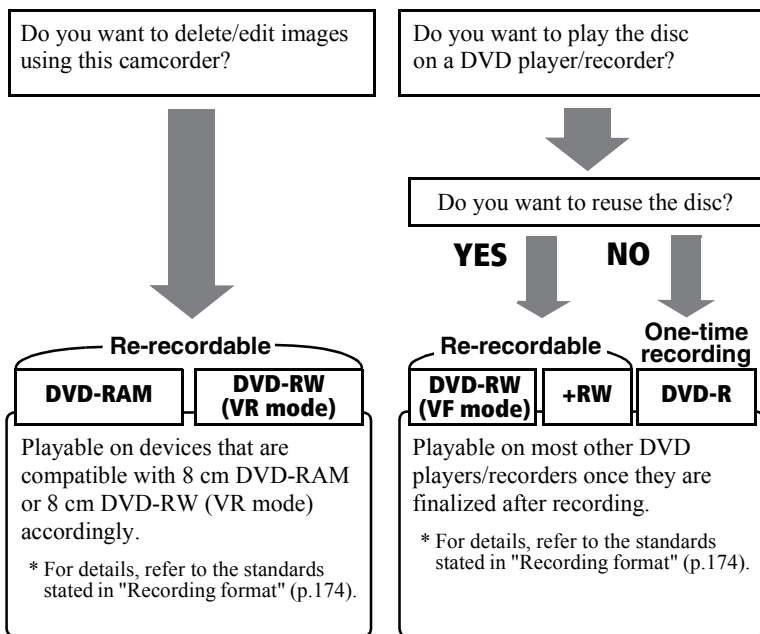
**After Watching**

**Store the recordings! Create a gift disc! Select a disc easily!**



DVD-RAM/  
DVD-RW/  
DVD-R  
+RW

## ■ Choosing a disc to suit your purpose



## How to Read this Instruction Manual

This Instruction Manual is intended for the DZ-HS903A and DZ-HS803A models. The following table shows the differences between the two models.

	DZ-HS903A	DZ-HS803A
<b>HDD (Hard Disk Drive) Capacity</b>	Approx. 30 GB	Approx. 8 GB
<b>Maximum movie recording time</b>	Approx. 11 hours (FINE mode)	Approx. 3 hours (FINE mode)
<b>External input function</b>	Equipped	Not equipped

## About operations using the cursor

Use the cursor ◀▶▶▶/◀▶▶▶ to select the items that appear on the LCD screen. This manual indicates the cursor operations using the symbol ▶. For details on how to operate the cursor, see "How to Operate the Menu" (p.57).

## About media descriptions

The camcorder functions available vary depending on the media (HDD/DVD/Card) used. Refer to the icon headings shown below to determine whether the function explained complies with the media in use.



Collective term	Icon	Media
HDD		Built-in hard disk drive (HDD)
DVD		DVD-RAM
		DVD-RW (VR mode)
		DVD-RW (VF (Video) mode)
		DVD-R
		+RW
Card		SD memory card miniSD memory card (exclusive adapter required) microSD memory card (exclusive adapter required)

## Displays in the Instruction Manual

The display messages are omitted in this manual. Please use the LCD display of your camcorder to check the messages.

## Before Using the Product

### - Be sure to read this information -

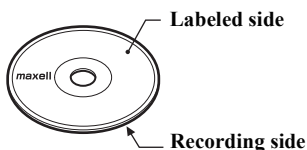
#### Conduct test recording.

- Before recording important shots, always conduct test recording to confirm that images are normally recorded.

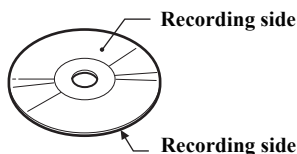
#### Recording surface

- Single-sided disc: unlabeled side.
- Double-sided disc: both sides.

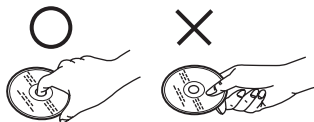
##### Single-sided disc



##### Double-sided disc



#### How to hold a disc



#### For correct recording

- Do not touch the recording surface of a disc.
- Check that a disc recording surface is not dirty or scratched.
- If the recording surface is dirty, wipe it clean using a soft cloth.

#### Caution on disc loading

- Never touch the pickup.

#### Caution on vibrations and impacts

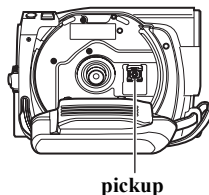
- While the ACCESS/PC indicator (p.14) is lit, do not subject the camcorder to strong vibrations or impacts. Caution should be particularly observed while the indicator remains lit for a while after the end of recording.

#### About DVD

- We recommend using Hitachi Maxell brand discs. The compatibility of the discs with this camcorder is confirmed.
- If there is concern that the camcorder may be subjected to large vibrations or impact during transport, remove the DVD and protect the camcorder using soft protective materials.



Use a soft cloth and gently wipe the disc surface from the inner to the outer region.



**Using DVD with other equipment**

- We cannot guarantee that playback is possible on all types of recorders/players.
- Playback may not be possible depending on the model of the playback device or recording status of the disc.
- When a DVD-RW/DVD-R recorded with this camcorder is used on another device, always finalize the disc (p.120) using the camcorder in advance.

**Hitachi will not compensate for recorded images.**

- Hitachi cannot compensate for any damages caused when recording is not made normally or recorded contents cannot be played back because of a defect in the camcorder, disc or card. Also, Hitachi cannot be responsible for your recorded video and audio.
- If you or a third party make a mistake when handling this camcorder, disc, card, etc., the recorded contents may be lost. We cannot be responsible for compensation for damage due to loss of recorded contents.
- In the event that your camcorder is sent for repair, whether repair is successful or not, recorded content may be lost. Hitachi cannot be held responsible for any lost data.

**Copyright**

- Be aware that recording is restricted for some demonstrations, performances and exhibitions, even for personal enjoyment.

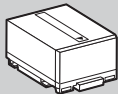


## Checking Provided Accessories

Make sure the following accessories are included in the package.

### Battery pack (DZ-BP14S)

Portable power supply for your new Hitachi Camcorder. Be sure to fully charge the battery before use.



### AC adapter/charger (DZ-ACS3)

Use to power the camcorder from an AC power outlet, and to charge the battery.



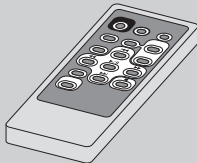
### DC power cord

To power the camcorder from an AC outlet, use this cord to connect the AC adapter/charger to the camcorder.



### Remote control (DZ-RM4W)

Use to control the camcorder from a distance.



### Lithium battery (CR2032)

To power the remote control.



#### WARNING

Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.

### Power cable

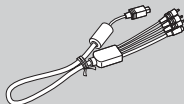
Connects the AC adapter/charger to the AC outlet.



### AV/S cable

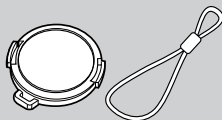
Use this cable to view images from the camcorder on a TV.

The DZ-HS903A can input audio and video signals from external AV devices using this cable. (However, note that the S-Video connector is for output signals only.) The DZ-HS803A has no external input function.



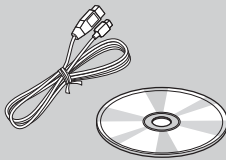
### Lens cap and lens cap string

Attach the lens cap when not recording, to protect the lens.



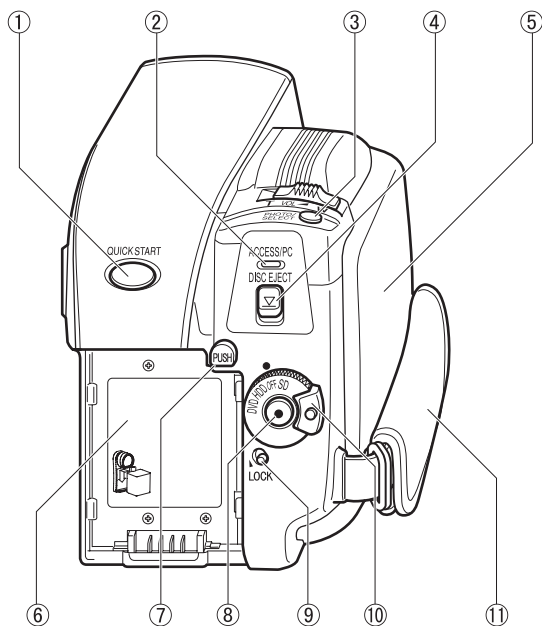
### Software CD-ROM and USB cable

Install the software on the CD-ROM onto your PC, then connect the camcorder to the PC using the USB cable.



## Names of Parts

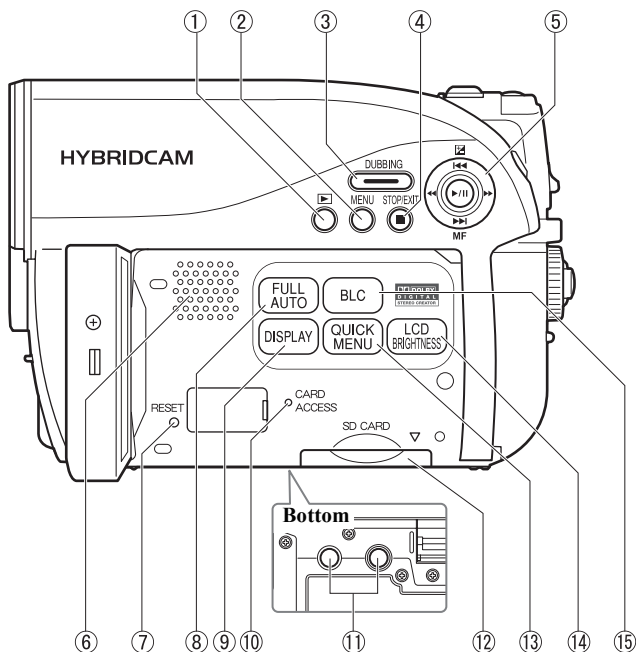
### Power switch side



- ① **QUICK START button** (p.41)
- ② **ACCESS/PC indicator** (p.11)
- ③ **PHOTO/SELECT button** (p.27, 47)
- ④ **DISC EJECT switch** (p.25)
- ⑤ **Disc compartment** (p.25)
- ⑥ **Battery platform** (p.21)
- ⑦ **Battery eject switch (PUSH)** (p.38)
- ⑧ **Record button** (p.25)

- ⑨ **Lock switch** (p.22)  
When the power switch is set to "HDD", set the LOCK switch to the upper position to prevent accidentally moving the power switch to "DVD".  
When the power switch is set to "DVD", the LOCK switch cannot be moved.
- ⑩ **Power switch** (p.22)
- ⑪ **Hand strap** (p.18)

## LCD monitor side (when the LCD monitor is opened 90°), and bottom



① (Disc Navigation) button (p.28)

② MENU button (p.23)

③ DUBBING button (p.82)

④ (stop/exit) button (p.47)

⑤ (cursor)/  
▶/II (confirmation) buttons

Used to choose scenes (movies and stills), select menu items and confirm, play/pause, or manually adjust exposure/focus.

⑥ Speaker

⑦ RESET button (p.172)

⑧ FULL AUTO button (p.72)

⑨ DISPLAY button (p.42, 48–49, 52)

⑩ CARD ACCESS indicator

⑪ Tripod receptacle

Used to attach the camcorder to a tripod.

⑫ Card slot (p.27)

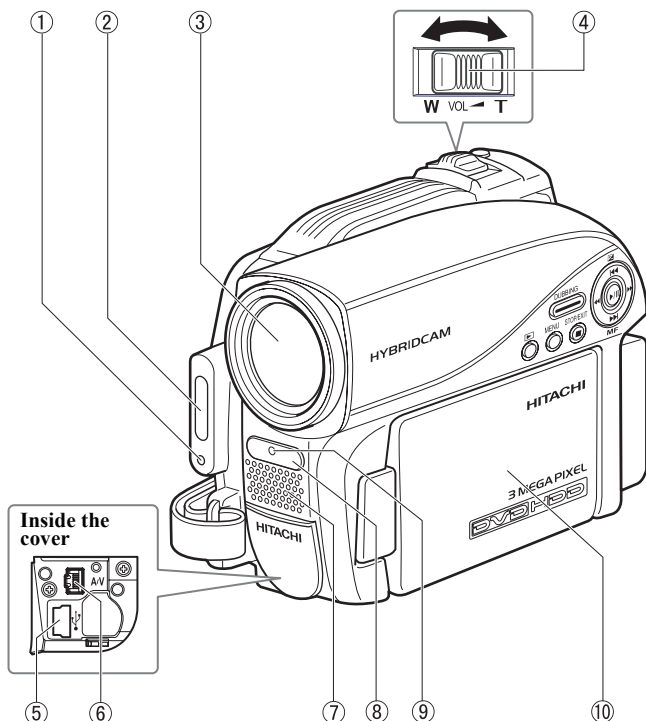
⑬ QUICK MENU button (p.57)

Used to display only basic menu items

⑭ LCD BRIGHTNESS button (p.20)

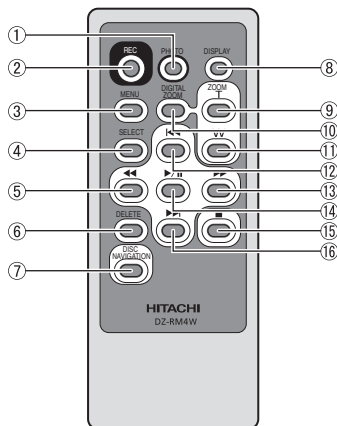
⑮ BLC button (p.67)


# Lens side



- ① **Light receiving sensor**  
Used to control flash amount.  
Do not block the light receiving sensor with your hand when recording still pictures.
- ② **Flash (p.72)**
- ③ **Optical 10x zoom lens (p.62)**
- ④ **Zoom lever/volume (p.52, 62, 64)**
- ⑤ **USB terminal (p.131)**
- ⑥ **A/V terminal (p.115)**
- ⑦ **Stereo microphone**  
Do not block the microphone with your hand during recording.
- ⑧ **Remote control receiver**
- ⑨ **Recording indicator (p.40)**
- ⑩ **LCD monitor (color wide-screen)**

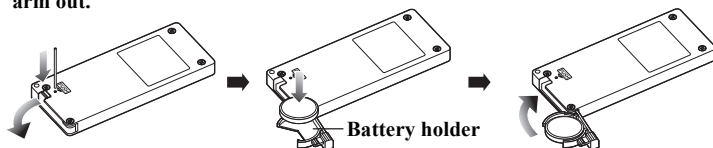
## Remote control



- |   |                                     |
|---|-------------------------------------|
| ① PHOTO button (p.27)   | ⑧ DISPLAY button (p.42)             |
| ② REC button (p.24)   | ⑨ ZOOM T button (p.62)              |
| ③ MENU button (p.23)  | ⑩ DIGITAL ZOOM button (p.62)        |
| ④ SELECT button (p.47)  | ⑪ ZOOM W button (p.62)              |
| ⑤ ◀◀ (reverse search) button (p.54)   | ⑫ ◀◀ (reverse skip) button (p.54)   |
| ⑥ DELETE button (p.102)   | ⑬ ▶▶ (forward search) button (p.54) |
| ⑦ DISC NAVIGATION button (p.28)   | ⑭ Confirmation button (p.28)        |
| * Functions the same as  . | ⑮ ■ (stop/cancel) button (p.47)     |
|   | ⑯ ▶▶ (forward skip) button (p.54)   |

## Inserting the provided lithium battery into the remote control

- ① While inserting a thin tipped instrument (paperclip, etc.) into the hole marked PUSH, swing the battery holder arm out.
- ② Insert the lithium battery with the positive (+) terminal facing down.
- ③ Slide the cover to close it.



\* For instructions on handling batteries, see p.18.

**Warning**

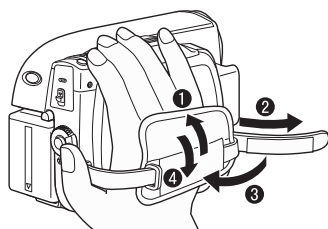
BATTERY MAY EXPLODE IF NOT HANDLED PROPERLY. DO NOT RECHARGE, DISASSEMBLE, OR DISPOSE OF IN FIRE.

**Note**

Replace the battery with a Hitachi Maxell, Sony, Panasonic, Sanyo, Toshiba CR2032, or Duracell DL2032. Use of another battery may present a risk of fire or explosion.

**Adjusting the hand strap**

Fasten the hand strap according to the procedure in the diagram.

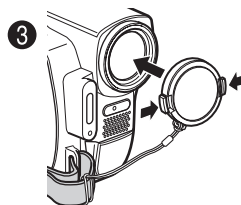
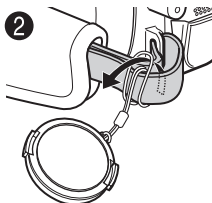
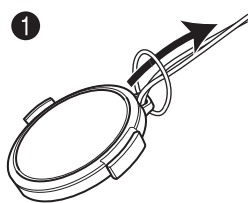
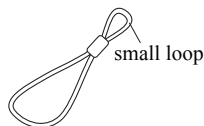


- ① Flip the cover.
- ② Flip the belt.
- ③ Replace the belt.
- ④ Replace the cover.

**Attaching the lens cap**

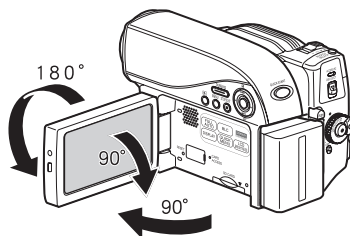
Tie the lens cap to the hand strap using the string (all supplied).

- ① Pass the small loop end of the string through the lens cap eyelet and knot.
- ② Tie the strap to the the hand strap.
- ③ Attach the lens cap to the lens.

**Notes**

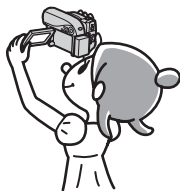
- To protect the lens, attach the lens cap to the lens when you are not using the camcorder.
- Wipe the lens using a soft dry cloth if the lens gets dirty.

## How to Open and Use the LCD Monitor



You can use the LCD monitor as follows.

Recording high places above your line of sight



### Basic posture

Hold the camcorder with both hands and tuck your elbows to your chest or sides, and move the camcorder at a gentle pace. This will allow you to record effectively without blurring.

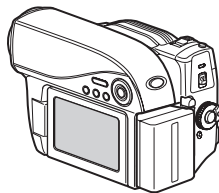
To record yourself (p.20)



Effortlessly record small children or pets at their line of sight



When playing back, etc.

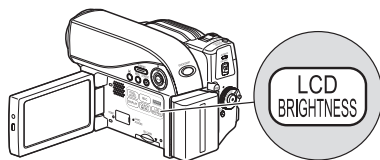


- If the LCD monitor is hard to see while recording in bright outdoor conditions, adjust the LCD brightness (p.20).

## About the LCD monitor display when recording yourself (the lens and LCD monitor are facing you)

- The LCD monitor displays a mirror image of the subject.
- The remaining battery charge indicator will only appear when battery power is almost gone. The battery charge indicator flashes red in this case.
- A warning message will not be displayed (p.148). You can confirm the warning message by rotating the LCD monitor 180° back to its normal orientation.

## How to Change the LCD Brightness



You can adjust the brightness of the LCD monitor when it is too dark or too bright to see the image on display.

The brightness changes every time you press **LCD BRIGHTNESS**. There are three settings available.

At time of purchase of this camcorder, the brightness is set to the brightest. The LCD brightness setting is retained in memory even when the power is turned off. However, if the camcorder is turned on while being powered from an AC power outlet, the LCD brightness setting will be reset to the brightest.

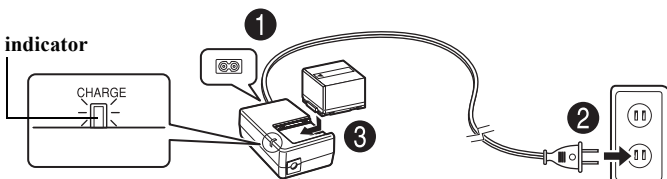


## Preparing

### ■ Setting up the battery pack

- 1 Connect the power cable to the AC adapter/charger.
- 2 Plug in the power cable to a wall outlet.
- 3 Attach the battery pack to the AC adapter/charger.
- 4 Attach the battery pack to the camcorder.

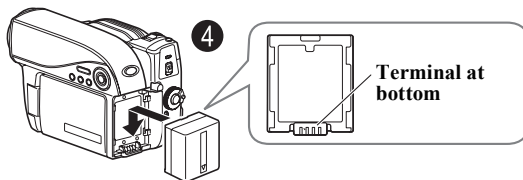
#### CHARGE indicator



If the CHARGE indicator does not light, check that the connections (1), (2), (3) are firmly connected.

#### Note

Charging will not occur if the DC power cord is connected.



### ● Charge status of the battery pack

The CHARGE indicator of the AC adapter/charger allows you to check on the charge status of the battery pack.

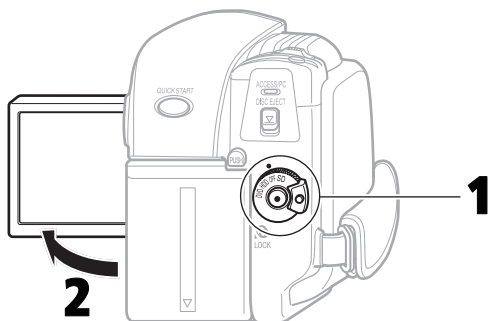
Charge Status	CHARGE indicator
During charge	lit
Charge complete	Unlit

\* For details on charging time, see p.37.

#### Notes

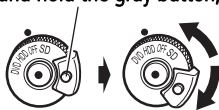
- Charge battery pack in temperatures above +50°F (10°C) and below +86°F (30°C).
- Use only the AC adapter/charger which accompanied your camcorder or direct replacement as listed in this manual.

## ■ Turning on the Power



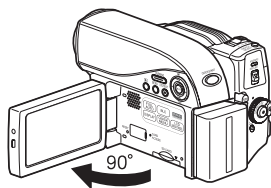
### 1 Turn on the power.

Press and hold the gray button, and turn the power switch to "HDD", "DVD", or "SD".



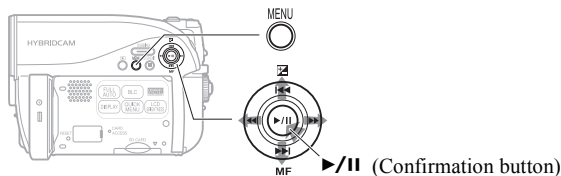
\* You do not need press the gray button when you turn off the switch or switch between "HDD" and "DVD".

### 2 Open the LCD monitor.



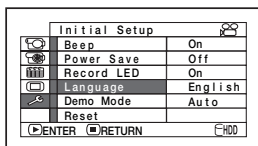
## ■ Changing the display language

You can change the language used on screens and menus as follows.



- 1 Press **MENU**, then select "Initial Setup" by pressing **◀◀▶▶**. Then press **▶▶** (or the confirmation button).

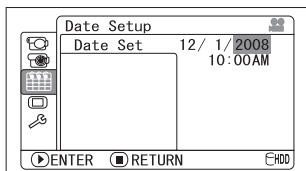
- ② Select "Language" by pressing **◀◀/▶▶**, then press **▶▶** (or the confirmation button).



- ③ Choose the desired language by pressing **◀◀/▶▶**, then press the confirmation button.

## ■ Setting the date and time

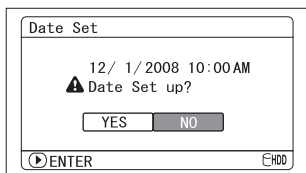
- ① Press **MENU**, then select "Date Setup" by pressing **◀◀/▶▶**. Then press **▶▶** to select "Date Set" and press **▶▶** again.



- ② Select each item by pressing **◀◀/▶▶** and set the correct value by pressing **◀◀/▶▶**.

- Repeat this step until year, month, date, hour, minute, and AM/PM are correctly set.

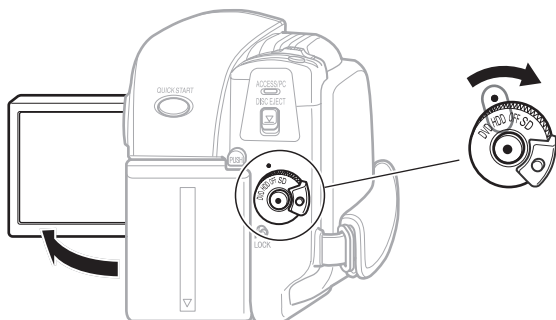
- ③ Press the confirmation button.  
The confirmation screen appears.



- ④ Press **◀◀** to select "YES", then press the confirmation button to confirm.
- If you select "NO" and press **▶▶**, the screen returns to step ②.

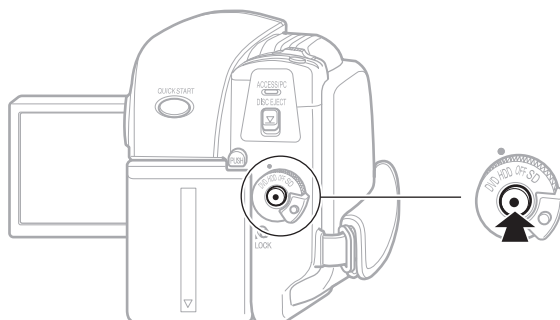
# Recording Movies to the HDD

- 1 Turn the power switch to "HDD".



\* You can change the movie recording quality (p.75).

- 2 Press the record button.

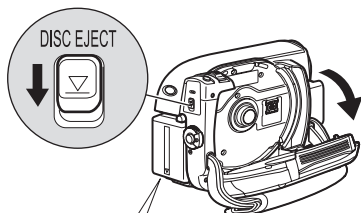


Recording begins.

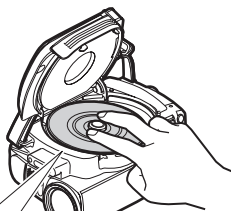
To pause recording, press the record button again.

# Recording Movies to a DVD

## 1 Insert a DVD.



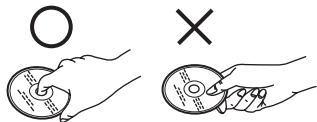
Attach the charged battery pack.



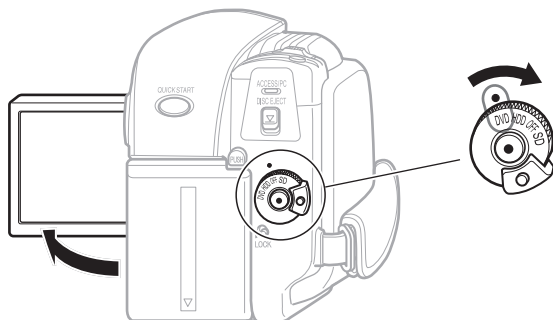
Place the recording surface of the DVD face down. (For a single-sided disc, the side opposite the label is the recording surface.)

### When handling a disc:

Do not touch the recording surface of a disc (p.11).

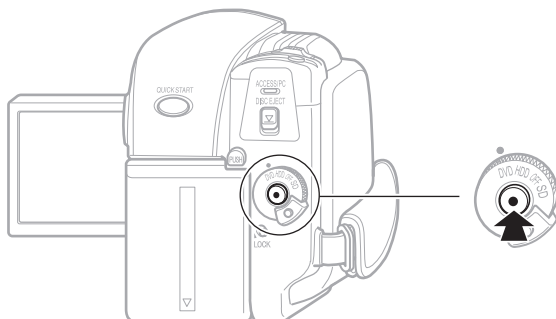


## 2 Turn the power switch to "DVD".

**Hint**

If the format confirmation screen appears after loading a new DVD-RW/+RW, format the disc as guided through the LCD screens (p.36). Formatting is not necessary when recording on a DVD-RAM/DVD-R.

## 3 Press the record button.

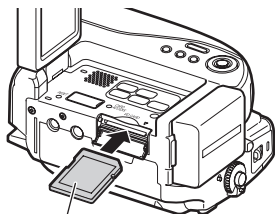


Recording begins.

To pause recording, press the record button again.

# Recording Stills to an SD card

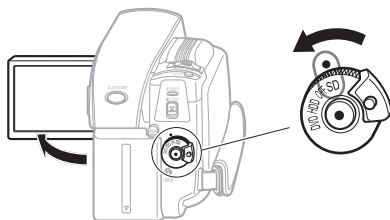
## 1 Insert an SD card.



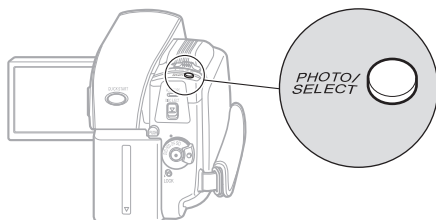
Pay attention to the orientation of the card.  
Face up the label side.

For usable card types, see p.33.

## 2 Turn the power switch to "SD".



## 3 Press PHOTO/SELECT.

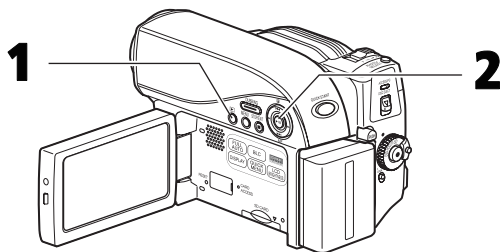



Press **PHOTO/SELECT** halfway down so that a subject in the center of the screen is focused.

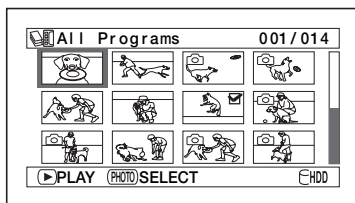
Fully press **PHOTO/SELECT** to record.

Single press of the **PHOTO/SELECT** button of the remote control enables focusing and recording at the same time.

## Playing Recorded Movies/Stills



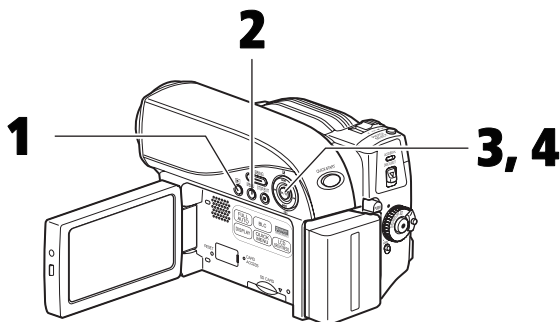
- 1** Press .
- 2** Choose a scene (movie/still), then press the confirmation button.



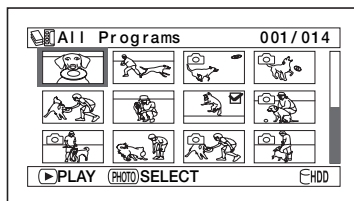
See p.115 for the instructions on viewing the recordings on your TV screen.



# Deleting Recorded Movies/Stills



- 1** Press .
- 2** Select a scene you want to delete, then press **MENU**.



- 3** Select "Scene" ► "Edit" ► "Delete", and then press the confirmation button.
- 4** Select "YES", then press the confirmation button.

The selected scene is deleted.

- Scenes on DVD-RW (VF mode)/DVD-R/+RW discs cannot be deleted.
- On +RW, you can delete only the last recorded scene (p.48).

## Functions and Characteristics of HDD/DVD/Cards

The following table lists the storage media (discs and cards) and available functions that can be used with this camcorder.

Function ●: Functions available —: Not available	Media						
	Built-in HDD	DVD-RAM	DVD-RW (VR mode)	DVD-RW (VF mode)	DVD-R	+RW	SD card
Recording movies (p.40)	●	●	●	●	●	●	—
Recording stills (p.45)	—	—	—	—	—	—	●
Deleting recordings (p.102)	●	●	●	—	—	●*1	●
Editing recordings (p.87)	●	●	●	—	—	—	—
Playing on other DVD players/recorders (p.118)	—	●*2	●*2 *3	●*3	●*3	●*2 *3	—
Initializing and reusing (p.112)	●	●	●	●	—	●	●
Making additional recordings after a disc is finalized (p.121)	●*4	●*4	●	●*5	—	●*5	●*4
Copying recordings onto a PC (p.125)	●*6	●*6	●*6 *7	●*6 *7	●*6 *7	●*6 *7	●
Making DVD video discs using a PC	—	●*6 *8	●*6 *8	●*6 *9	●*6 *9	—	—

\*1 Only the last recorded scene can be deleted (p.48).

\*2 Not playable on some devices.

Playback is possible using a device which complies with the medium type.

\*3 Must be finalized. Not playable on some devices.

\*4 As finalizing is unnecessary (cannot be performed), additional recordings are possible at any time.

\*5 To make additional recordings, the finalized disc must be unfinalized.





\*6 The provided software is used.

\*7 Finalize the disc to edit on a PC.

\*8 A DVD-VR disc can be created.

\*9 A DVD video disc can be created.

## ■ About HDD/DVD

Usable discs and their logos		Function
HDD		Allows extensive movie recordings. DZ-HS903A: approx. 11 hours in FINE mode DZ-HS803A: approx. 3 hours in FINE mode Allows editing and deleting scenes.
DVD-RAM Ver. 2.1 (8 cm)		Allows editing and deleting scenes.
DVD-RW 2x Ver. 1.1 (8 cm)		Allows editing and deleting scenes using the camcorder in VR mode. Does not allow editing or deleting scenes using the camcorder in VF mode, but provides higher compatibility with other DVD players.
DVD-R for General Ver. 2.0 (8 cm)		Provides compatibility with most DVD players. Does not allow editing and deleting scenes.
+RW Ver. 1.2 (8 cm)	 DVD+ReWritable	Provides high compatibility with other DVD players and does not need to be finalized. Scenes can be deleted immediately after being recorded.

\* The versions in the above chart refer to physical standard versions of discs.

**Notes**

- Hitachi Maxell single sided discs (HG type) have been confirmed to be compatible with this camcorder and are recommended. Take care not to dirty (including fingerprints) or scratch the surface of the discs when handling.

When using a double-sided disc, take great care with handling it. Using non-Hitachi Maxell discs may not allow the camcorder to deliver optimum performance.

- DVD housed in a square cartridge/caddy case or a round DVD holder cannot be used as is. The DVD must be removed from its case/holder before it can be used.

**Note on DVD-R**

This camcorder writes control data to a disc in order to automatically make recording adjustments when first recording after:

- a disc is inserted, and
- the power is turned on while the disc is in the camcorder.

If there is not enough space on the control area of a disc, recording may not be possible even if the data space for recording movies is not full. To prevent this, avoid performing operations described above more than 99 times per disc.

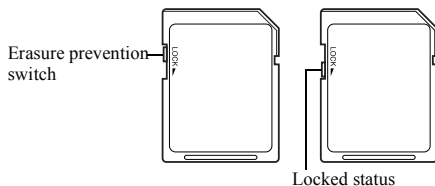
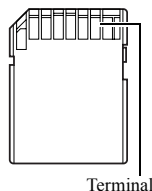
**Unusable Discs**

Dual layer DVD discs, Blu-ray disc, +R, and HD-DVD.

## ■ About cards

### ● Card Handling

- Do not use cards other than those specified.
- Be sure to perform trial recording before recording important images.
- Do not touch the card terminal or allow it to touch metal.
- Do not paste anything other than the designated label in the label area.
- Do not subject cards to impact, bending, or dropping.
- Do not disassemble or modify a card.
- Do not expose cards to water.
- Do not use or store cards in the following places:
  - Where the temperature is high, such as in a vehicle in the sun or near a heater
  - Where humidity is high, or in a dusty place
- When the erasure prevention switch is locked, recording, deletion, and editing are not allowed. Only playback is possible.



### Notes

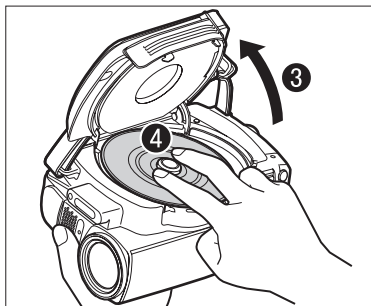
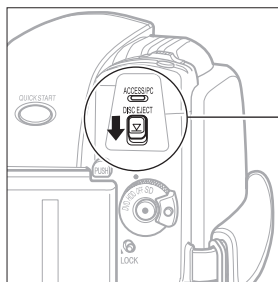
- Only 1 GB or less capacity SD memory cards can be used. (2GB SD memory cards cannot be used with this camcorder.)
- When using an exclusive adapter, a miniSD memory card and micro SD memory card can be used in the same way as an SD memory card. No SDHC card or multimedia card can be used.

## ■ Cautions for discs and cards

To prevent data loss or damage:

- Do not remove the battery and card while reading or writing data.
- Do not use the camcorder in a place subject to static electricity or electrical noise.
- Do not leave a disc unused in the camcorder for an extended period of long time.

## ■ Inserting a DVD



- ❶ Attach the charged battery pack to the camcorder or connect the camcorder to a wall outlet.
- ❷ Turn the power switch to "OFF". Then, press down the **DISC EJECT** switch until the **ACCESS/PC** indicator lights, then release.
- ❸ After several seconds, the lid pops open. Open it fully with your hand.
- ❹ Place the recording surface of the DVD face down, then push down on the center of the DVD until it clicks into place.
  - For single-sided discs, the side opposite the label is the recording surface.
  - To record on the other side for double-sided discs, remove the disc (p.35), flip it over, and reload it.

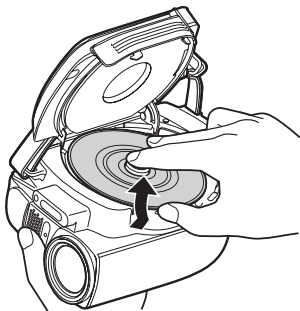
### ❺ Close the lid.

The **ACCESS/PC** indicator flashes. During this process, do not remove the power source, shake, or subject the camcorder to impacts.

### ❻ When a new DVD-RW or +RW is inserted, see p.36.

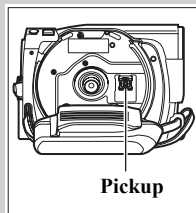
## Removing the disc

Pressing slightly on the center hub with a finger, grip the edge of the disc by your thumb and lift the disc out as shown.



### Notes

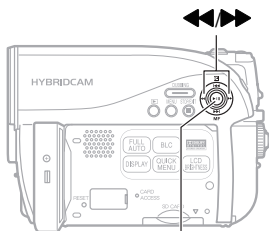
- The disc mechanism will be very hot immediately after use. Do not touch the metallic areas.
- Do not peer into the pickup. Doing so may cause damage to your eyesight.
- To prevent malfunction, never do any of the following:
  - touch the pickup
  - insert a disc that is not compatible with the camcorder (p.31, 32)
  - close the lid before setting the disc securely into place
- The power automatically turns off if the lid is left open for approx. three minutes.
- The lid will not open if the camcorder is not connected to a power source.



## ■ When loading a new DVD-RW/+RW

The disc must be formatted before it can be used for recording. When the disc is loaded, the format confirmation screen will appear in the LCD monitor. Format the disc according to the procedure below.

- 1 Open the LCD monitor.

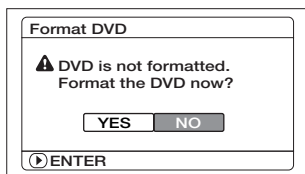


▶/II (confirmation button)

### Note

Be careful that the power is not accidentally cut off during formatting. Otherwise, the disc will become unusable.

- 2 Select "YES" by pressing ◀◀, then press the confirmation button.



### When using a DVD-RW

Proceed to step 3.

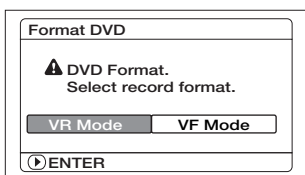
### When using a +RW

Formatting will start. Skip step 3.

- 3 (When using a DVD-RW)

The recording format selection screen appears.

Select "VR Mode" or "VF Mode" by pressing ◀◀▶▶, then press the confirmation button.



### VR Mode

After recording, you can perform various editing functions such as choosing and deleting scenes.

You can play back the disc in a device which supports 8 cm DVD-RW (VR Mode) after finalizing the disc.

### VF Mode (Video mode)

Although editing cannot be done on the camcorder, you can play back the disc on other DVD devices after finalizing the disc.



## ■ CHARGE lamp status and charging time

Lights	Charging	Approx. charging time (at approx. 77°F (25°C))	
Goes out	Charge Complete	DZ-BP14S (provided)	165 mins
		DZ-BP14SW (separately sold)	
		DZ-BP21SW (separately sold)	235 mins
Blinks	See "Troubleshooting" (p.157).		

## ■ Recording time with a fully charged battery

Use the following table to estimate continuous recording times (minutes) using a fully charged battery pack.

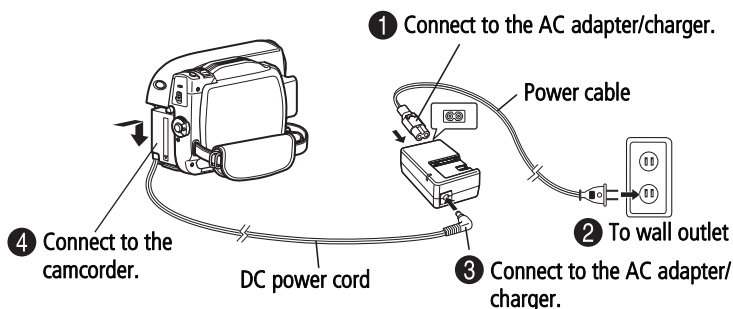
Battery type		Continuous recording (with max LCD brightness)				Normal use* (with max LCD brightness)			
	Video mode	XTRA/FINE		STD		XTRA/FINE		STD	
	Recording media	HDD	DVD	HDD	DVD	HDD	DVD	HDD	DVD
DZ-BP14S (provided) DZ-BP14SW (separately sold)		110	95	110	105	55	45	55	50
DZ-BP21SW (separately sold)		165	140	165	155	80	70	80	75

\* Recordable time when zoom, focus, and switch changes are operated.

### Notes

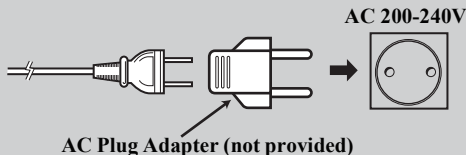
- In low temperature environments, recording time will be shortened.
- The times indicated in the table are estimates, and will change depending on actual recording conditions.

## ■ Connecting the camcorder to a wall outlet

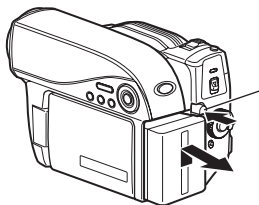


### Notes

- The battery pack will not be charged while the DC power cord is connected to the AC adapter/charger even if the battery pack is attached to the AC adapter/charger.
- The AC adapter/charger can be used around the world. An AC plug adapter is required in some foreign countries. If you need one, purchase it from your local electronics distributor.



## ■ Detaching the DC power cord/battery pack from the camcorder



- 1 Always turn the power off before disconnecting the power supply.
- 2 While pressing and holding **PUSH**, slide the DC connector or battery pack upward, then remove it.
  - Be careful not to drop the battery pack while detaching it.

## ■ Efficient Use of the Battery

- The battery will slightly discharge even if it is detached from the camcorder.
- If the battery is left attached to the camcorder, it will consume a slight amount of power. Therefore, it is recommended that you charge the battery a day before using the camcorder.

### **When you intend not to use the camcorder for an extended period of time**

It is recommended that you fully charge the battery at least once every six months, attach it to the camcorder, turn it on and fully deplete the battery charge, then remove the battery and store it in a cool place.

### **Battery life**

The battery life varies greatly depending on the ambient environment and how often the camcorder is used. If the usable time of the camcorder with a fully charged battery is noticeably short, the battery should be replaced. Purchase a new one.

### **Power Save function**

To save power, do not leave the camcorder in record pause mode for too long. Even during record pause, battery power is consumed at about the same level as during recording.

By turning the power save function On, the camcorder will automatically turn off if left idle for approximately five minutes in record pause mode. For power save function, see "How to use the LCD setup and initial setup" (p.60).

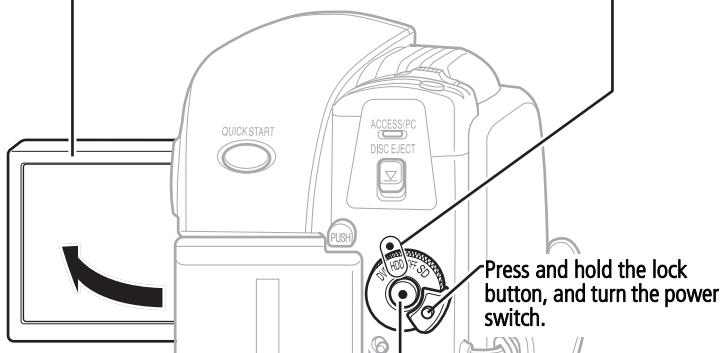
HDD RAM RW (VR) RW (VF) R +RW

## Recording Movies

You can choose either HDD or DVD to record movies.

**1** Turn the power switch to "HDD" or "DVD".

**2** Open the LCD monitor.

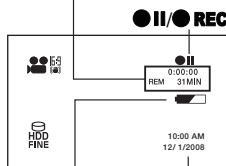


**3** Press the record button.

- "●II" (record pause) in the LCD monitor will change to "●REC" and recording will begin.
- The recording indicator beneath the lens will also light up red.
- To pause recording, press the record button again. The elapsed recording time will reset to "0:00:00".
- To resume recording, press the record button again.

Elapsed recording time  
(hrs : mins : secs)

Remaining space on  
HDD/DVD/Card



Remaining  
battery level

Current time

## ■ Using the Quick Start function

If you press **QUICK START**, the camcorder enters sleep mode and will keep battery consumption to a minimum (approx. half of the power consumed during recording) and you can restore record pause mode quickly (about one second) by pressing **QUICK START** again. During sleep mode, the QUICK START button lights blue.



### Hints

- For details on screen displays during recording, see p.42.
- You can change the movie recording quality (p.75).
- If you cannot record movies, the camcorder does not operate, or it takes too long for recording to start, see “Troubleshooting” (p.157).
- About Sleep Mode
  - You can also return to record pause mode from sleep mode by pressing the record button (press again to start recording) or changing the media.
  - When you return to record pause mode from sleep mode, the zoom position (approx. 1.5×), manual focus, exposure, and backlight compensation will return to their default settings (p.62, 64–67).
  - Regardless of the power save setting (p.60), the camcorder power will automatically turn off if standby in sleep mode continues for approx. 30 minutes. In this case, first turn the power switch to “OFF”, then turn it to “HDD”/“DVD”.

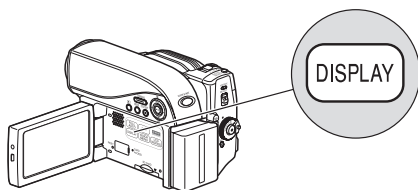
### Notes

- The ACCESS/PC indicator is flashing for a while even after you finish recording. While the ACCESS/PC indicator is flashing, do not turn off the power or shake the camcorder. Doing so may cause an error in the recorded data and you may not be able to play back the data (p.170).
- The minimum recording time for movies is about three seconds (even if you press the record button before three recording seconds have elapsed).
- It may not be possible to deactivate the protection on a DVD which was protected using another device. In this case, use that same device to deactivate the protection.

## Information Display During Recording

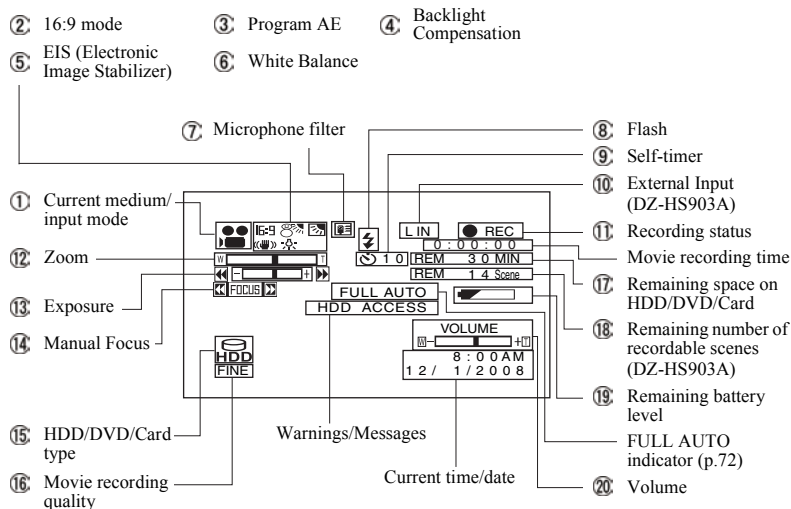
### Switching the display mode

Various information will appear in the LCD monitor during recording. You can choose simple display or detailed (all information) display by pressing **DISPLAY** repeatedly.







### On-Screen Information

See the next page for details.




\* The above display is for explanation and different from the actual display.






**① Current medium/input mode** (p.24, 25, 27)

-  : "Input Source" is "CAMERA" and in movie recording mode (HDD/DVD)
-  : "Input Source" is "CAMERA" and in still recording mode (Card)
-  : "Input Source" is "LINE" and "PHOTO input" mode (still capture quality for a movie from a connected external device) is "Field". (LINE) (DZ-HS903A)
-  : "Input Source" is "LINE" and "PHOTO input" mode is "Frame". (LINE) (DZ-HS903A)


**② 16:9 mode** (p.75) (when using HDD/DVD)

- No icon : Off
-  : On


**③ Program AE** (p.67)

- No icon : Auto
-  : Sports
-  : Portrait
-  : Spotlight
-  : Sand & Snow
-  : Low Light





**④ Backlight Compensation** (p.67)

- No icon : Off
-  : On


**⑤ Electronic Image Stabilizer (EIS)** (p.71) (when using HDD/DVD)

- No icon : Off
-  : On



**⑥ White Balance** (p.68)

- No icon : Auto
-  : Set
-  : Outdoor
-  : Indoor1
-  : Indoor2


**⑦ Microphone filter** (p.71) (when using HDD/DVD)

- No icon : Off
-  : On

**⑧ Flash** (p.72) (when using Card)

- No icon : Auto
-  : Flash On
-  : Flash Off



**⑨ Self-timer** (p.79) (when using Card)

- No icon : Off
-  : On (Ten-second countdown)

**⑩ External Input** (p.78) (DZ-HS903A)


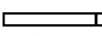
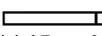
- L IN : AV input

**⑪ Recording status**

-  REC : Recording
-  : Record pause (lit green)  
Focus is locked (lit purple when using card (recording stills))

No icon\*<sup>1</sup>

**⑫ Zoom** (p.62)












- W  T  
(Digital Zoom: Off)
- W  T  
(Digital Zoom: 40x)
- W  T  
(Digital Zoom: 240x) (when using HDD/DVD)

**⑬ Exposure** (p.66)

- No gauge : Auto
-  -  +  : Manual

**14. Manual Focus** (p.64)

No gauge : Auto

 : Manual**15. Current medium and its status** (p.30)  
(HDD/DVD/Card) : HDD : Protected HDD : DVD-RAM : Protected DVD-RAM : DVD-RW (VR mode/VF mode) : Protected DVD-RW (VR mode) : Finalized DVD-RW (VR mode) : Protected Finalized DVD-RW (VR mode) : Finalized DVD-RW (VF mode) : DVD-R : Finalized DVD-R  
(finalized using this camcorder) : DVD-R finalized using a device  
other than the DZ-HS903A/  
DZ-HS803A.  
Or DVD-R recorded using a  
HITACHI camcorder marketed  
before the DZ-HS903A/  
DZ-HS803A : +RW : Finalized +RW : SD memory card : Locked SD memory cardNo icon<sup>\*2</sup>**16. Movie recording quality** (p.75)  
(when using HDD/DVD)

XTRA : Best quality

FINE : High quality

STD : Extended recording

**Still recording quality** (p.77)  
(when using card)

FINE : High quality

NORM : Standard quality

ECO

High quantity (lower quality)

**17. Remaining space on HDD/DVD/Card**<sup>\*3</sup>**REM XX MIN**<sup>\*4</sup>:Remaining recordable time during movie  
recording (HDD/DVD)**REM XX**<sup>\*5</sup>:Number of remaining recordable still images  
during stills recording (Card)**18. Remaining number of recordable scenes**<sup>\*3</sup>  
(when using HDD) (DZ-HS903A)**REM XX Scene**:Will appear when the remaining number of  
recordable scenes (999 scenes max.<sup>\*6</sup>) is 50 or  
less. If the number is down to 10 or less, the  
display will be in purple.**19. Remaining battery level** (p.37) Full → Almost empty**20. Volume**Appears here when "Input Source" is set to  
"LINE" (DZ-HS903A).During playback, this indicator appears in a  
different position of the LCD screen (p.52).

- \*1 No icon appears when:
  - no disc or card is inserted.
  - a disc not formatted is loaded.
  - the HDD is protected or a protected disc or locked card is loaded.
  - the HDD, disc, or card has no remaining space.
- \*2 No icon appears when:
  - no disc or card is inserted.
  - an unusable disc or card is inserted.
- \*3 No remaining time or number will be displayed when a protected disc or locked card, or a finalized DVD-RW (VF mode)/DVD-R/+RW disc is inserted.
- \*4 Sometimes longer recording than indicated is possible while recording in XTRA mode.
- \*5 The number of recordable stills is approximate. Depending on the recording conditions, the number may not decrease.
- \*6 Combining scenes will not increase the remaining number of recordable scenes.

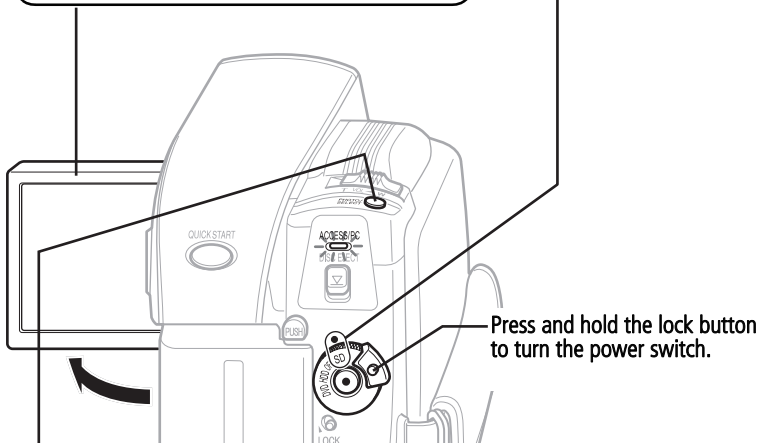


## Recording Still Pictures

Still pictures are recorded on an SD memory Card.

**1** Turn the power switch to "SD".

**2** Open the LCD monitor.



**3** Press PHOTO/SELECT halfway down.

A subject in the center of the screen will be focused. When focus is locked, the green "●II" in the LCD monitor will turn purple.

**4** Fully press PHOTO/SELECT.

The image will be recorded. After a few seconds, the image shot will be displayed for about three seconds. You can shoot the next photo when "●II" changes back to green.

### Hints

- For details on screen displays during recording, see p.42.
- If you want to compose a shot in which the subject is not centered, first press **PHOTO/SELECT** halfway with the subject centered in the monitor. Next, with the button pressed halfway, compose your shot and fully press **PHOTO/SELECT**.
- If the camcorder has difficulty focusing, adjust the focus manually (p.64).
- Although it is possible to fully press **PHOTO/SELECT** in a single action without pressing it halfway, the image may be out of focus.
- You can check the card capacity and number of remaining recordable pictures (p.176).
- If you are unable to record still pictures, see “Troubleshooting” (p.157).
- About Sleep Mode
  - You can also return to record pause mode from sleep mode by pressing **PHOTO/SELECT**. To record, you need to press **PHOTO/SELECT** again.
  - When you return to pause mode from sleep mode, the zoom position (approx. 1.5×), manual focus, exposure, and backlight compensation will return to their default settings (p.62, 64–67).
  - Regardless of the power save setting (p.60), the camcorder power will automatically turn off if standby in sleep mode continues for approximately 30 minutes. In this case, first turn the power switch to “OFF”, then turn it to “SD”.

### Notes

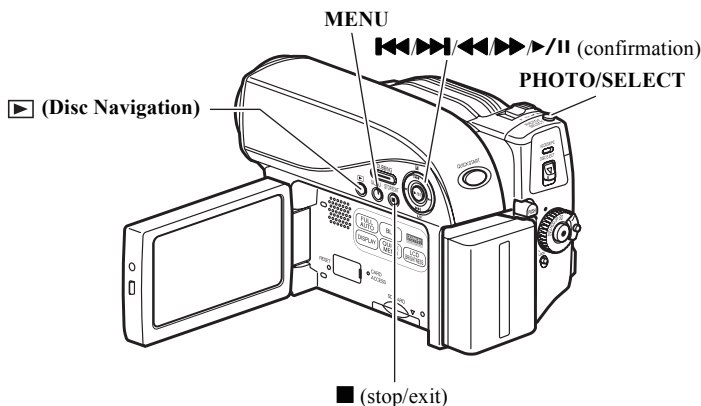
- After recording, do not disconnect the battery or AC adapter/charger until “●II” lights green in the LCD monitor. Doing so may cause an error in the recorded data and you may not be able to play back the data (p.170).
- Hold the camcorder with both hands and tuck your elbows to your chest or sides for best recording results.
- When recording with digital zoom, use a tripod for best results.
- The recorded image may differ slightly from the image in the LCD monitor.

# Playback

## (Watching Your Recordings)

Recorded movies and still pictures are referred to as “scenes”. For movies, a scene is one continuous uninterrupted recording, and for still images, a scene is one still picture.

Open the LCD monitor before starting playback (p.19).



HDD (RAM) (RW (VR)) (RW (VF)) (R) (+RW) CARD

### ■ Playing back the last recorded scene

You can play back the last recorded scene right away.

- 1 If the camcorder is not in record pause mode, set the camcorder to record pause mode for the medium you want to play back (p.40, p.45).
- 2 Press the confirmation button.

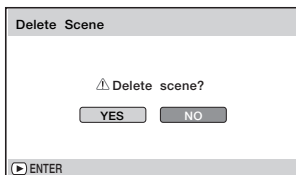
The scene recorded last will play back.

When playing back a movie, playback is paused after the final frame and “▶” (playback pause icon at the final frame) appears. If this condition continues for more than five minutes, the camcorder will automatically return to record pause mode. To promptly return to record pause mode, press ■.

HDD RAM RW(VR) RW CARD

## ■ Deleting the last recorded scene

- 1 Play back the last recorded scene (p.47).
- 2 Press **MENU**.
- 3 Select "Edit" ► "Delete Scene", then press the confirmation button.



- 4 Select "YES" by pressing ◀◀, then press the confirmation button.

The scene will be deleted.

- To cancel deletion, select "NO" and press the confirmation button or simply press ■.
- After deleting or canceling deletion, the camcorder will return to record pause mode.

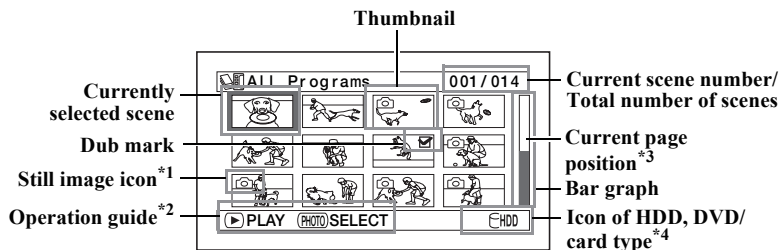
### Hint

There is another playback method using the disc navigation screen (see below). In this case, "Delete Scene" does not appear after pressing **MENU**.

HDD RAM RW(VR) RW(VF) R RW CARD

## ■ Choosing and playing back a scene

- 1 Press ► while the media you want to play back is in record pause mode.  
The scenes thumbnails appear on the disc navigation screen.



\*1 The icon displayed represents a photo recorded that uses another Hitachi DVD camcorder that can record photos on a DVD-RAM disc. (This DVD camcorder cannot record photos on a DVD-RAM disc.)

- \*2 The operation guide will vary depending on the operation status of the DVD camcorder.  
Each press of **DISPLAY** switches the information of the currently selected scene as follows:  
Date and time of recording, Movie quality (VIDEO mode)/Wide (16:9) mode/Movie length (only HDD), Operation guide.
- \*3 Appears when 13 scenes or more have been recorded.
- \*4 When using a disc, the icon that corresponds to the type of disc being used will appear, and “” will appear for a card.

Icons displayed in a thumbnail:

: Dub mark (p.80)

: Photo (p.27)

: Lock (p.110)

: Fade-in (p.106)

: Fade-out (p.106)

: Skip (p.107)

- ② Choose a scene by pressing (up/down, previous page/following page) and (left/right).
- Holding down the button will increase the scene selection speed. Use the “Current scene number/Total number of scenes” display and the bar graph as reference.
- ③ Press the confirmation button.
- The chosen scene is played back.
- Playback is paused at the final frame of the last scene, and “” (playback pause icon at the final frame) appears. When this condition continues for longer than five minutes, the display will automatically return to the disc navigation screen.
- To promptly return to the disc navigation screen, press or .
  - To return to record pause mode, press or again.
  - If you press the confirmation button while “” is displayed, playback starts from the first scene.

**HDD** **RAM** **-RW (VR)** **-RW (VF)** **R** **+RW** **CARD**

## ■ Choosing and playing back multiple scenes

After step ① of “Choosing and playing back a scene” (p.48), perform procedures according to your purpose from the table below. When you have finished choosing scenes, press the confirmation button to begin playing them back.

- You can utilize more than one method in the table below when choosing scenes.
- You can choose up to 999 scenes.
- The color of the frame(s) may change depending on your operations as follows:
  - Yellow**: indicates your current position (cursor frame)
  - Red**: indicates scenes already chosen
  - Blue**: indicates the range of consecutive scenes being selected
  - 2-color frame**: includes the meaning of both colors

Select multiple scenes individually	<ol style="list-style-type: none"> <li>1 Select a scene by pressing <b>◀◀▶▶/▶▶▶▶</b>, then press <b>PHOTO/SELECT</b>.</li> <li>2 Repeat this step to choose the next scene.</li> </ol>
Using the current scene as your starting point, select multiple previous or succeeding consecutive scenes	<ol style="list-style-type: none"> <li>1 Press and hold <b>PHOTO/SELECT</b> until the cursor frame becomes blue.</li> <li>2 Choose a final scene by pressing <b>◀◀▶▶/▶▶▶▶</b>, then press the confirmation button to confirm the setting.</li> </ol>
Select all scenes from the first scene to the current scene. (Menu option: Start→Current)	<ol style="list-style-type: none"> <li>1 Press <b>MENU</b>, select "Scene" by pressing <b>▶▶</b>, then select "Select" by pressing <b>◀◀▶▶</b>.</li> <li>2 Press <b>▶▶</b> or the confirmation button.</li> <li>3 After choosing the desired option by pressing <b>◀◀▶▶</b>, press the confirmation button to confirm the setting.</li> </ol>
Select all scenes from the current scene to the final scene. (Menu option: Current→End)	
Select all scenes on the media. (Menu option: All)	
Cancel operations while selecting the range (while a blue frame is displayed)	Press <b>■</b> .
Cancel selected scenes individually	Move the cursor frame (yellow) to a selected scene (red) you want to cancel and press <b>PHOTO/SELECT</b> .
Cancel all scenes selected	Press <b>■</b> .

**HDD** **RAM** **-RW (VR)** **-RW (VF)** **R** **+RW** **CARD**

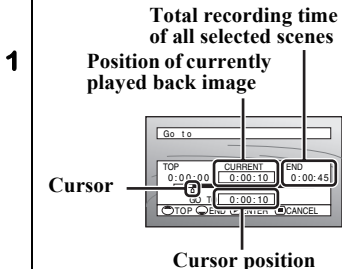
## ■ Jumping to the designated scene

- 1 Press **MENU** after step ③ of "Choosing and playing back a scene" (p.48)—while a scene is played back.  
The Menu appears.
- 2 Select "Go To" by pressing **◀◀▶▶**, then press **▶▶**.
- 3 Select "Top", "End", or "Specify" by pressing **◀◀▶▶**, then press the confirmation button to confirm.  
Top: Goes to the beginning, then pauses playback.  
End: Goes to the end, then pauses playback.  
Specify: Goes to the specified point, then pauses playback. (See next page on how to specify a point.)
- 4 Press the confirmation button.

## ● Specifying the point to jump to

Select "Specify" in step ③ in "Jumping to the designated scene" (p.50), then press the confirmation button.

The specify screen will appear.



Select the desired point by time by pressing ◀◀ / ▶▶ / ◀◀ / ▶▶.

◀◀: To select the beginning

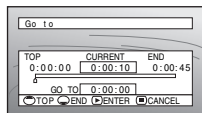
▶▶: To select the end

◀◀ / ▶▶ once:

To move the cursor one minute back or forward for HDD (ten seconds for DVD, one still for card)

Press and hold ◀◀ / ▶▶:

To move the cursor in ten minutes increments for HDD (one minute for DVD, ten stills for card)



(When the start of the selected scene is selected)

- 3**
- Press the confirmation button.  
The camcorder will go to the specified point and enter playback pause mode.
- To start playback, press the confirmation button again.

### Hints

- To cancel the "Go To" procedure midway, press ■ before going to the specified point.
- With a card, the number of stills will appear at the "Top", "Current", "End", and "Go To" indicators.

### Note

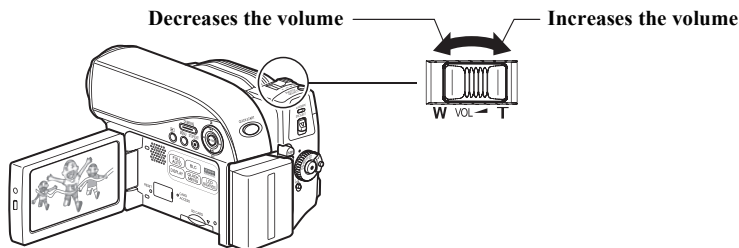
The cursor position is a rough estimate. The cursor may not move at even intervals.

**Notes**

- When you play a still image from a card, “Playback.” appears. If the image file is very large (high resolution, etc.), it will take more time to display.
- The disc navigation screen automatically appears if:
  - the HDD/DVD is protected.
  - the SD memory card is locked.
  - a finalized DVD-RW (VF mode)/DVD-R/+RW is loaded.
  - a DVD-RW (VF mode)/DVD-R recorded on a Hitachi DVD camcorder other than this model is loaded.
- It may require more time to start playing back if many scenes are chosen.

**HDD** **RAM** **◀RW(VR)** **◀RW(VF)** **◀R** **◀RW**

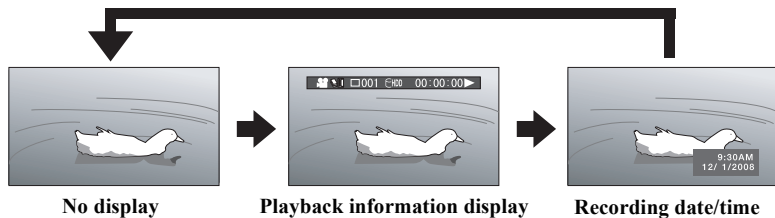
## ■ Adjusting speaker volume during movie playback



## ■ Information Display During Playback

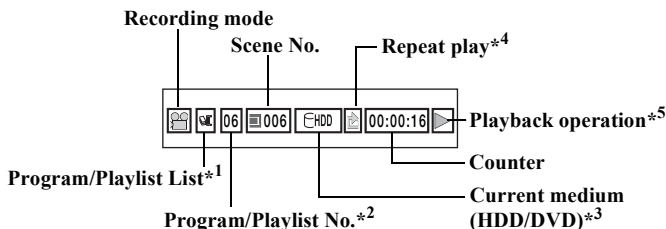
Various types of information on recording will be superimposed on the playback image you are viewing.

The display mode switched in the following way each time you press **DISPLAY**.

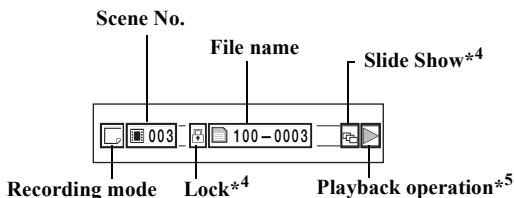




## When using HDD/DVD



## When using Card



- \*1 Program or Playlist
- \*2 Not displayed while playing All Scenes.
- \*3 See "Current medium and its status (HDD/DVD/Card)" on p.44.
- \*4 Appears when set (see p.55, 56, 110).
- \*5 There are following playback operations:

▶: Standard playback

⏏: Playback pause

⏩: Forward search playback

⏪: Reverse search playback

⏭: Forward skip playback

⏮: Reverse skip playback

⏴: Forward frame advance

⏴: Reverse frame back

⏶: Forward slow playback

⏶: Reverse slow playback

For instructions on how to operate, see p.54.

⏮ appears after the first still or the first frame of the first movie is played when playing reverse.

⏭ appears after the last still or the last frame of the last movie is played when playing forward.

## ■ Simple functions you can use during playback or playback pause

HDD ◀RAM ▶RW(VR) ◀RW(VF) R ▶RW

### Movies (during playback)

Functions	Press
Pause	The confirmation button
Fast-forward/ Reverse	▶▶ (Forward)/◀◀ (Reverse) and hold
Skip forward/ backward	▶▶▶ (Forward)/◀◀◀ (Reverse)

- If you press ◀◀ within a few seconds from the beginning of a scene, playback starts from the beginning of the previous scene.
- If you press ▶▶ while the last scene is playing back, playback is paused at the final frame of the last scene.

Continuous skipping	▶▶▶ (Forward)/◀◀◀ (Reverse) and hold
---------------------	--------------------------------------

HDD ◀RAM ▶RW(VR) ◀RW(VF) R ▶RW

### Movies (during playback pause)

The following functions will operate during playback pause in the same way as during playback. However, if the button is released, playback will return to playback pause.

- Skipping
- Continuous skipping

The following functions only operate during playback pause.

Functions	Press
Frame by frame playback (forward/reverse)	▶▶ (Forward)/◀◀ (Reverse)

- No sound will be heard.
- Frames are advanced in intervals of approx. 0.03 seconds and reversed in intervals of approx. 0.5 seconds.

Slow playback (Forward/Reverse)	▶▶▶ (Forward)/◀◀◀ (Reverse) and hold
---------------------------------	--------------------------------------

- No sound will be heard.
- Slow playback advances in intervals of approx. 0.03 seconds and reverses in intervals of approx. 0.5 seconds.

### Notes

- If the temperature inside the camcorder gets too high, the camcorder may fail to function normally. Turn off the power and wait awhile before turning the power back on.
- In slow playback, images with fast-moving subjects may appear blurred.

### CARD

## Still pictures (during card playback)

Reminder: For still images, a “scene” is one still image, a photograph.

Functions	Press
Playing previous or later scenes (stills)	▶▶▶▶ (Forward)/ ◀◀◀◀ (Reverse)

Each time you press ▶▶▶▶ or ◀◀◀◀, the next or previous still is shown. If you continue pressing, stills are played back successively until you release the button, or the last/first scene is reached.

- For automatic playback for still pictures, use the slide show function.

### CARD

## ■ Playing still pictures on a card automatically (Slide Show)

When you play back when the slide show is On, still pictures are played one after the other.

If the playback range of scenes has been specified, the slide show plays back this specified range of scenes.

- 1 Press **MENU** on the disc navigation screen (p.48).
- 2 Use the cursor buttons to select “Slide Show”, then “Start”. Press the confirmation button.
  - Playback starts from the beginning regardless of the selected scene or cursor position.
  - The camcorder enters playback pause after showing the last picture.
  - To return to the disc navigation screen, press ■.

HDD RAM ◀RW(VR) ▶RW(VF) R ▶RW

## ■ Capturing a still picture from a movie (PHOTO Capture)

You can capture and record an image displayed during movie playback as a photo.

The number of photo pixels differs depending on the mode as follows:

In 16:9 mode: 640 × 360 pixels

In 4:3 mode: 640 × 480 pixels

- ① Press **PHOTO/SELECT** or **MENU** at the frame you want to capture during movie playback or playback pause.
  - If you press **PHOTO/SELECT**, go to step ④. If you press **MENU**, proceed to the next step.
- ② Select "Edit" by pressing **◀◀/▶▶**, then press **▶▶**.
- ③ If "PHOTO Capture" is not selected, select it by pressing **◀◀/▶▶**, then press the confirmation button.
- ④ Press **◀◀** to select "YES", then press the confirmation button to confirm.
  - To cancel capturing, either press the confirmation button while "NO" is selected or press **■**.
  - After capturing is complete or canceled, the screen will return to playback pause.

HDD RAM ◀RW(VR) ▶RW(VF) R ▶RW

## ■ Playing back scenes repeatedly (Repeat Play)

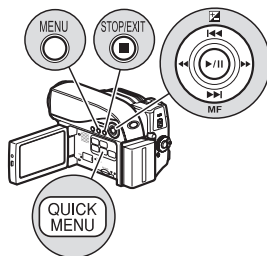
When this function is On, all scenes will play back from the first scene to the last scene repeatedly.

If a range of scenes (or just one scene) is specified (p.49), playback of the specified scenes will be repeated.

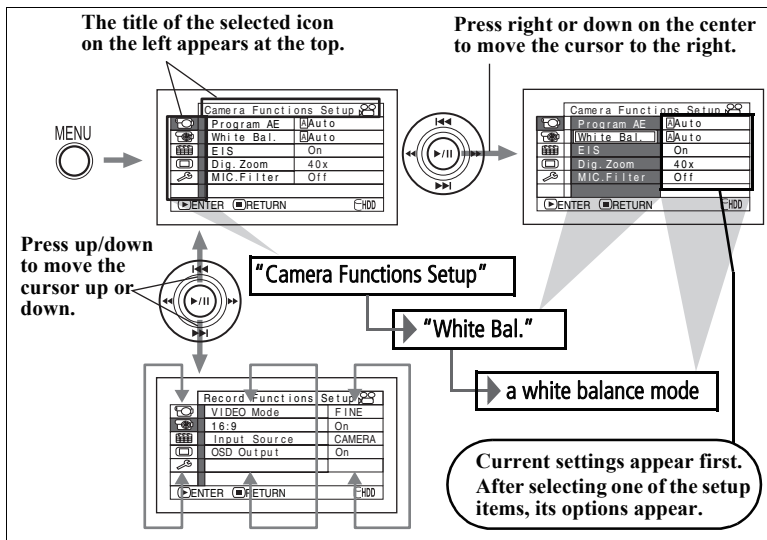
- ① Press **MENU** on the disc navigation screen (p.48).
- ② Select "Others" by pressing **◀◀/▶▶**, then press **▶▶**.
- ③ Select "Repeat Play" by pressing **◀◀/▶▶**, then press **▶▶**.
- ④ Select "On" by pressing **◀◀/▶▶**, then press the confirmation button to confirm the setting.
- ⑤ Press **MENU** to return to the disc navigation screen.
- ⑥ Press the confirmation button to begin playback.
  - To quit playback, press **■**. ("Repeat Play" remains "On".)
  - "Repeat Play" will be set to "Off" if:
    - you repeat the steps and select "Off" instead of "On" in step ④
    - turn off the power
    - remove the DVD
  - Repeat playback will not function when you play the last scene when the camcorder is in record pause mode.

## How to Operate the Menu

- 1 Press **MENU**.  
You can also use **QUICK MENU** to display the Quick Menu screen which contains only basic menu items.



- 2 **Example:**  
Select "Camera Functions Setup" ►  
"White Balance" ► a white balance mode



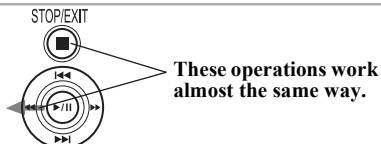
- 3 Press the confirmation button to confirm, then **MENU** to end.



\* To quit without changing the setting, press **MENU** before pressing the confirmation button.

To cancel/exit and return to the previous stage

To go back left in the Menu



## Menu (While Recording)

### Movie Menu

Menu items (1st level)	Menu items (2nd level)	Quick Menu items	Common to movie and stills	See
<b>Camera Functions Setup</b> * Not displayed while using the external input function (DZ-HS903A)	Program AE		○	p.67
	White Balance		○	p.68
	EIS			p.71
	Digital Zoom			p.62
	MIC. Filter			p.71
<b>Record Functions Setup</b>	VIDEO Mode	○		p.75
	16:9	○		p.75
	Input Source (DZ-HS903A)	○	○	p.78
	OSD Output		○	p.116
<b>LCD Setup</b>	LCD Adjust		○	p.60
<b>Date Setup</b>	Date Set	○	○	p.23
	Date Mode		○	p.61
<b>Initial Setup</b>	Beep		○	p.60
	Power Save		○	p.60
	Record LED		○	p.74
	Language	○	○	p.22
	Demo Mode	○	○	p.61
	Reset	○	○	p.60

## Stills Menu

Menu items (1st level)	Menu items (2nd level)	Quick Menu items	Common to movie and stills	See
<b>Camera Functions Setup</b> * Not displayed while using the external input function (DZ-HS903A)	Program AE		○	p.67
	White Balance		○	p.68
	Digital Zoom			p.62
	Flash			p.72
<b>Record Functions Setup</b>	Quality	○		p.77
	Input Source (DZ-HS903A)	○	○	p.78
	PHOTO Input (DZ-HS903A)			p.78
	Self Timer	○		p.79
	OSD Output		○	p.116
<b>LCD Setup</b>	LCD Adjust		○	p.60
<b>Date Setup</b>	Date Set	○	○	p.23
	Date Mode		○	p.61
<b>Initial Setup</b>	Beep		○	p.60
	Power Save		○	p.60
	Record LED		○	p.74
	Language	○	○	p.22
	Demo Mode	○	○	p.61
	Reset	○	○	p.60

## ■ How to use the LCD setup and initial setup

	Menu items	Explanation of functions		Initial value
LCD Setup	LCD Adjust	Color Level	Adjusts the color level of the LCD monitor.	—
	Beep	Select “Off” to turn off the beeps that sound when any button is pressed.		On
Initial Setup	Power Save	When set to “On”, the camcorder power will automatically turn off if it is left idle for approx. five minutes during record pause mode. When set to “Off”, the camcorder does not turn off automatically except while in sleep mode.		Off
	Record LED	p.74		On
	Language	You can select the display language.		English
	Demo Mode	p.61		Auto
	Reset	Returns all menu settings to default.		—

## Setting the Date and Time

See “Setting the date and time” (p.23) for setting procedures.

### Note

The camcorder is equipped with a built-in rechargeable battery to retain the date and time in memory. If the built-in battery is depleted, the date and time will need to be reset. Periodically (once every six months) recharge the internal battery by connecting the camcorder to a wall outlet or attaching a charged battery pack to the camcorder while leaving the camcorder turned off for 24 hours.



## Changing the date format

You can change the date format to “D/M/Y” or “Y/M/D”.  
(Selecting “D/M/Y” will change the clock to 24 hour style.)

- ❶ Press MENU.
- ❷ Select “Date Setup” ▶ “Date Mode” ▶ one of the date formats
- ❸ Press the confirmation button, then press **MENU** to exit the setup.

### ■ About the demonstration function

At time of purchase of this camcorder, this function is set to “Auto”.

A demonstration starts automatically when you connect the AC adapter/charger to the camcorder as a power source and leave the camcorder idle for more than approx. ten minutes, after turning on the power and set the camcorder to:

- HDD, or
- the medium (DVD or SD memory card) which is not inserted in the camcorder.

To cancel the demonstration, press any one of the camcorder buttons.

### Changing the demo mode setting or watching the demonstration now

- ❶ Press MENU.
- ❷ Select “Initial Setup” ▶ “Demo Mode” ▶ one of the following settings:  
**Auto:** See above.  
**Off:** Turns off the demonstration function.  
**Start:** The demonstration will start right away. If you cancel the demonstration, the prior setting will be restored (“AUTO” or “OFF”).
- ❸ Press the confirmation button.

#### Notes

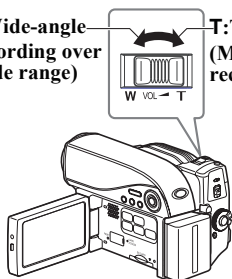
- If a battery pack is connected to the camcorder as a power source, the demonstration will not begin even if “Demo Mode” is set to “Auto”.
- The demonstration function does not work when the camcorder is connected to a PC.

## Magnified Recording (Optical Zoom and Digital Zoom)

The zoom lever allows you to choose a range of magnifications from wide-angle to telephoto zooming. Optical zooming up to ten times is the maximum telephoto magnification.

**W:Wide-angle**  
(Recording over a wide range)

**T:Telephoto**  
(Magnifies recording)

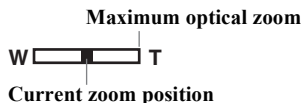


Maximum zoom values will depend on the "Digital Zoom" settings in the Menu as follows.

### Digital zoom options

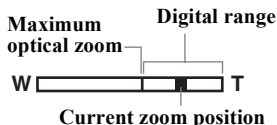
#### Off

When the zoom is used, the following optical zoom bar appears in the LCD monitor.



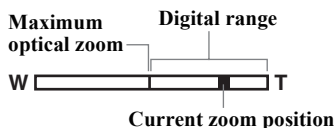
#### 40x

When the optical zoom exceeds ten magnifications, the digital zoom starts working automatically. The maximum telephoto zoom value is 40x magnification. The zoom bar appears as follows.



#### 240x

The maximum telephoto zoom is 240x magnification. The zoom bar appears as follows.



### Setting the digital zoom

**1** During record pause, press **MENU**.

**2** Select "Camera Functions Setup" ►  
"Digital Zoom" ► a digital zoom option

**3** Press the confirmation button to confirm, then press **MENU** to end the Menu.

- The "Digital Zoom" setting is retained in memory even when the power is turned off.

**Hint**

You can also use the remote control for changing the maximum digital value. Each press of DIGITAL ZOOM switches the “Digital Zoom” setting as follows;  
 “Off” → “40x” → “240x”



(When using a card)

“Off” ↔ “40x”

## Recording at close range

1

During record pause or recording, point the camcorder at the subject and push the zoom lever toward the W side until the wide-angle is maximized.

- Recording up close may require more lighting. If the screen is dark, direct a light source at the subject.

**Notes**

- The maximum telephoto zoom is 40x when using a card even if “Digital Zoom” is set to “240x”.
- When operating the zoom lever, the focus may blur for a moment.
- When digital zoom is added, the image quality will become coarser.

**Note**

Although the zoom can be used, the focus may become blurred depending on the distance to the subject.

HDD (RAM) (RW (VR)) (RW (VF)) (R) (RW) CARD

### Recording at Close Range (Macro Recording)

When you record a small subject at close range, you can bring the lens surface as close as approx. 13/16” (2 cm) to the subject. This will allow you to enlarge the subject to cover the entire screen.

HDD (RAM) (RW (VR)) (RW (VF)) (R) (RW) CARD

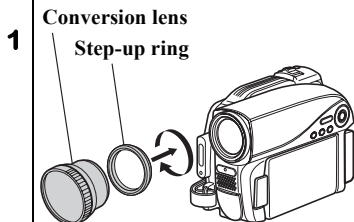
### Using the Separately-Sold Lenses to Increase the Wide-Angle or Telephoto Effect

Use the tele-conversion lens DZ-TL1 (separately-sold) to increase the telephoto effect, and the wide-conversion lens DZ-WL1 (separately-sold) to increase the wide-angle effect.

To attach one of the lenses, firstly you need to attach the step-up ring DZ-SR3037 (separately sold).

## Attaching the separately sold lenses

Attach the step-up ring to the camcorder. Then remove the lens cap from the conversion lens and attach the conversion lens to the camcorder.



### Notes

- If you attach the DZ-TL1 conversion lens, the focusing range at the T (telephoto) side will be from approx. 16.4 feet (5 m) to infinity.
- When you zoom while the conversion lens is attached, the four corners of the screen may become a little dark or scratchy at the W (Wide) side. (The four corners may not be evenly dark.)
- When changing lenses, be careful not to drop the camcorder.
- Attaching a conversion lens will prevent you from using the flash. Turn the “Flash” setting to “Off” (p.72).

- If you intend to use any commercially available conversion lens, make sure its filter diameter is 30.5mm and the screw pitch is 0.5mm. (Note that some lenses may be unusable depending on their shape.)

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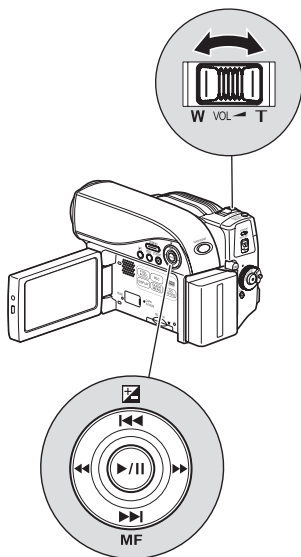
## Adjusting the Focus Manually (Manual Focus)

If it is difficult to adjust the focus automatically, you can adjust it manually (Manual Focus). (See also “Difficult auto focus conditions” (p.65).)

### Focusing range

- T (telephoto) side:  
Approx. 3.2 feet (1 m) from the lens surface to infinity.
- W (wide-angle) side:  
Approx. 13/16” (2 cm) from the lens surface to infinity.

## How to focus manually

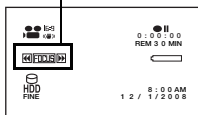


1

During record pause or recording, press **MF**.

The Focus icon appears in the LCD monitor.

### Manual focus icon



- Focusing switches between Manual Focus and Auto Focus each time **MF** is pressed. The icon is displayed only during manual focusing.

2

Push the zoom lever toward the T (telephoto) side to magnify the subject.

Adjust the focus by pressing **MF**.

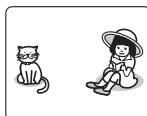
3

- When the power is turned off, the camcorder returns to auto focus.
- To manually adjust the focus, always magnify the subject as in step 2. When the focus is adjusted for wide-angle zooming, the focus may become blurred if you switch to telephoto zooming.

### Hint

If you wish to adjust exposure while focusing manually, press **MF**. To return to manual focusing, press **MF**.

## Difficult auto focus conditions



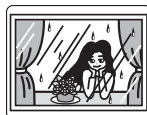
Subjects are not in the center of the frame



Subjects that are both near and far



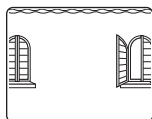
Subjects lit by a neon sign or spot light which glares or emits strong light



Subjects behind glass covered with water droplets or dirt



**Subjects moving rapidly**



**Subjects with minimal variation in brightness such as a white wall**



**Dark subjects**



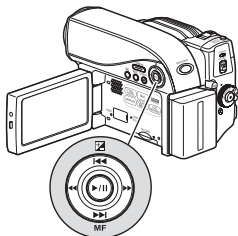
**Night views**


HDD RAM RW(VR) RW(VF) R +RW CARD

## Adjusting the Brightness of the Image (Exposure)

Normally, the exposure is automatically adjusted. However, depending on the recording conditions, the exposure can be adjusted manually.

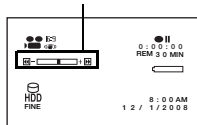
### Adjusting the exposure manually




During record pause or recording, press **⏮** (  ).

The exposure bar appears in the LCD monitor.

#### Exposure Bar



1

- Each time you press **⏮** (  ), exposure adjustment switches between manual adjustment and automatic adjustment. The exposure bar appears only during manual adjustment.

2

Adjust the exposure by pressing **⏮** / **⏭**.

- When the power is turned off, exposure adjustment returns to automatic adjustment.

#### Hint

If you wish to adjust focus manually while adjusting exposure, press **⏭**.

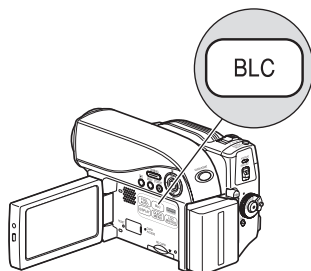
To return to exposure adjustment, press **⏮**.

HDD RAM ~~FW(VR)~~ ~~FW(VF)~~ R ~~FW~~ CARD

## Compensating for Backlight (Backlight Compensation)

When the subject is lit from the rear, this function will compensate for lighting so that the subject is not too dark.

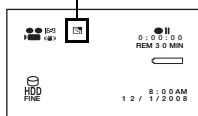
### Compensating for backlight



During record pause or recording, press **BLC**.

The backlight compensation icon appears in the LCD monitor.

#### Backlight compensation icon



- Each time you press **BLC**, the backlight setting turns On or Off. The backlight compensation icon appears only when this function is On.

- When the power is turned off, the backlight compensation setting returns to Off.

HDD RAM ~~FW(VR)~~ ~~FW(VF)~~ R ~~FW~~ CARD

## Selecting a Program AE Mode to Match the Conditions (Program AE)

The camcorder automatically gauges the subject and surrounding conditions and determines the optimal settings for recording (during Auto). However, you can also select a Program AE mode that better suits the situation for even clearer images.

### Program AE modes

- A Auto**  
The Camcorder automatically detects the subject and surrounding conditions for optimum recording.
- Sports**  
Reduces blurring when recording rapidly moving subjects such as tennis.
- Portrait**  
Makes the subject, such as a person or pet, stand out from a blurred background.
- Spotlight**  
Prevents overexposure of the subject in strong light, such as at a wedding or on stage.

**Sand&Snow**

Prevents underexposure of the subject in very bright conditions, such as at the beach or on a ski slope.

**Low Light**

Allows you to record in dark places with limited light.

## Selecting a Program AE mode

**1** During record pause, press **MENU**.

**2** Select "Camera Functions Setup" ►  
"Program AE" ► a Program AE mode

**3** Press the confirmation button to confirm, then **MENU** to end.  
The selected Program AE mode (other than Auto) appears in the LCD monitor (p.42).

- The Program AE mode is retained in memory even when the power is turned off.

**Notes**

- When recording in dark places, after-images may appear if the subject is moving or if camera shake occurs. Use a tripod for best results.
- If you use Sports mode under fluorescent light, the LCD screen may flicker. In such a case, use Auto mode.

HDD (RAM) (RW (VR)) (RW (VF)) (R) (RW) (CARD)

## Adjusting the Color (White Balance)

Light is required when recording subjects. While the naked eye perceives colors as they are, images recorded by a camera may appear redder or bluer than they actually are. To record white colored subjects as white images, adjust the white balance.

The camcorder normally adjusts the color automatically (during Auto). Change the white balance setting according to the recording conditions.

## White balance mode

**Auto (No icon appears.)**

**Set**

When recording sunsets and sunrises, recording in shade, and recording a stage lit with a spot light, you can manually adjust white balance to match the light source or situation.

**Outdoors**

To record in fine weather.

**Indoor 1**

To record under incandescent light, halogen light or soft fluorescent light.

**Indoor 2**

To record under bright fluorescent light



## Selecting a white balance mode

**1** During record pause, press **MENU**.

**2** Select "Camera Functions Setup" ►  
"White Balance" ► a white balance mode

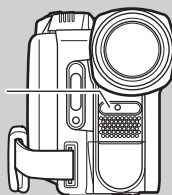
**3** Press the confirmation button to confirm, then **MENU** to end.  
The selected white balance mode (other than Auto) will appear on the screen (p.42).

- The white balance mode is retained in memory even when the power is turned off.

### Notes

- Do not block the infrared sensor with your hand or other things to obtain a good cast for your recording.

Infrared sensor

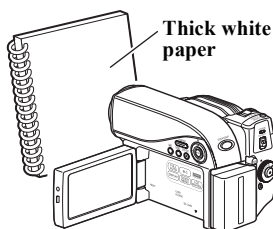


- If a tele-conversion lens or wide-conversion lens is attached, the white balance may not be properly adjusted automatically depending on the conditions. In such a case, select the appropriate white balance mode or set the white balance manually.
- The white balance does not work properly if you turn on the power while the lens cap is attached to the lens. Be sure to remove the lens cap before turning on the power.

## ■ Setting the white balance manually (Set)

Prepare a white object such a thick sheet of white paper that is not translucent.

- 1** Point the camcorder at the white object so that it fills the screen.



- 2** During record pause, press **MENU**.

- 3** Select "Camera Functions Setup" ► "White Balance" ► "Set"

- 4** Press the confirmation button.  
"■" flashes in the LCD monitor.

- 5** Press the confirmation button again, and continue holding the button down until "■" stops flashing and lights steadily.  
The white balance setting is complete.

Press ■ to end, or to redo, repeat step 5.

- 6**
- The white balance setting selected in "Set" is retained in memory until the setting is changed again.
  - In order to accurately adjust the color, readjust the settings in "Set" each time the recording conditions change. If the power is turned off while white balance is in "Set" mode, "■" flashes in the LCD monitor the next time the power is turned on to remind you. As the previous setting is retained in memory, redo the settings if needed.

### Notes

- It may be difficult to perform this setting in dark places. Also if the zoom bar is positioned in the digital range (p.62), you may not be able to set the white balance. If white balance settings cannot be accomplished, "■" will continue to flash. Return the zoom to the optical range and redo the settings in a bright environment.
- If the "Set" settings are not completed within a few moments, the camcorder returns to record pause mode and "■" flashes in the LCD monitor. Redo the settings from step 1.
- You cannot select "Set" while "Input Source" is set to "LINE" (p.78).

HDD RAM -RW(VR) -RW(VF) R +RW

## Using the Electronic Image Stabilizer (EIS)

EIS corrects for fuzziness in an image when you zoom in on a subject.

We recommend turning EIS Off when you position the camcorder on a table or use a tripod when recording.

### Turning EIS Off/On

**1** During record pause, press **MENU**.

**2** Select "Camera Functions Setup" ►  
"EIS" ► "On"/"Off"

**3** Press the confirmation button to confirm, then **MENU** to end.  
When the function is turned On, "⟨⟨⏏⟩⟩" appears in the LCD monitor (p.42).

- EIS is retained in memory even when the power is turned off.
- If "Off" is selected, be sure to return the setting to "On" afterwards, if you do not normally use a tripod, etc.

#### Notes

- When EIS is active, there will be a slight divergence between the actual camera movement and the on-screen movement.
- Even if EIS is turned On, the camera movement may not be corrected if the movement is too excessive.

We recommend you stabilize the camcorder using both hands and support your arms against your body when recording.

- EIS may not function correctly when a tele-conversion lens or wide-conversion lens is used.
- When using a card (recording stills), EIS cannot be set.

HDD RAM -RW(VR) -RW(VF) R +RW

## Reducing Wind Noise During Recording


When recording sound from the built-in microphone, you can reduce wind noise in the recording when the MIC. filter is On. Lower frequencies noise is eliminated and the target sound becomes clearer.

### Turning the MIC. filter On/Off

**1** During record pause, press **MENU**.

**2** Select "Camera Functions Setup" ►  
"MIC. Filter" ► "On"/"Off"

3

Press the confirmation button to confirm, then **MENU** to end. When the function is turned On, “” appears in the LCD monitor (p.42).

- The MIC. filter setting is retained in memory even when the power is turned off.
- If you set this function to “On”, it is recommended to set the function to “Off” after recording before turning off the power unless you always intend to use this function.

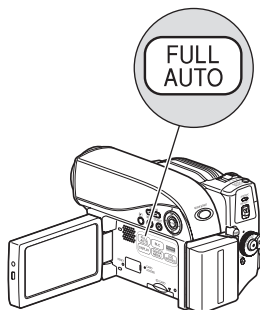
HDD RAM RW (VR) RW (VF) R RW CARD

## Restoring all the Recording Settings to Default (Full Auto)

You can reset the following manually adjusted recording settings to their defaults with the press of a single button.

Function	Default	See
Focus	Auto	p.64
Exposure	Auto	p.66
BLC (Backlight)	Off	p.67
Program AE	Auto	p.67
White Balance	Auto	p.68
EIS (Electronic Image Stabilizer)	On	p.71
MIC. Filter	Off	p.71

## Setting the recording settings to full auto



1

During record pause or recording, press **FULL AUTO**.

“FULL AUTO” appears in the LCD monitor for a while and the settings are reset to their default settings.

CARD


## Using the Flash

As shutter speed will slow down when still photos are recorded in dim lighting, camera shake may easily occur. We recommend you use a flash in this case.


Normally, the flash fires automatically depending on the recording conditions (during Auto). You can also set the flash to On (always fires) or Off (does not fire).

## Flash mode


### Auto

The flash fires only when necessary. When the flash is needed, “” appears in the LCD monitor when you press **PHOTO/SELECT** halfway, and then the flash fires when you press **PHOTO/SELECT** all the way.



### On

“” is displayed in the LCD monitor all the time. The flash always fires when you fully press **PHOTO/SELECT**.

### Off

“” is always displayed in the LCD monitor and the flash will not fire.

## Selecting a flash mode


- 1 During record pause, press **MENU**.
- 2 Select “Camera Functions Setup”   
“Flash”  a flash mode

3

Press the confirmation button to confirm, then **MENU** to end.

- To check where the flash icon appears in the LCD monitor, see p.42.
- The flash setting is retained in memory even when the power is turned off.
- If “Off” or “On” is selected, and you do not plan to record with that flash mode all the time, we recommend you return the setting to “Auto” after recording and before turning off the power.

### Hints

- There may be cases when the recorded pictures are out-of-focus in dark places even if the flash is used. We recommend you shine a light on the subject for recording in dark places.
- “” flashes in the LCD monitor while the flash is recharging and the flash will not fire.
- When recording stills up close, set “Flash” setting to “Off”. If the subject is too close, image smearing may occur.

### Notes

- When a conversion lens is attached, the flash cannot be used. Adjust the “Flash” setting to “Off”.
- Although the flash range differs according to the subject, as a reference, its range is about 3.2–8.2 feet (1–2.5 m) in dark places.
- Although the amount of light emitted will automatically be adjusted at time of emission, the flash may not be sufficiently adjusted if the distance to the subject is too distant or too near.
- In bright or backlit conditions, it may be difficult to derive the full effect of the flash.

- When recording consecutive shots using the flash, the flash may not fire or the amount of light emitted may not be sufficiently adjusted. After using the flash to record, it is recommended that you wait for a while and then press **PHOTO/SELECT** to record again.
- Do not emit the flash close up in front of a person's eyes. Doing so may cause eyesight damage. Particularly when recording infants using the flash, record at a distance greater than 3.2 feet (1 m) away.
- Do not fire the flash at the driver/rider of a moving vehicle or bicycle, etc. Doing so will temporarily blind the driver and may result in accident.
- Do not use the flash in locations where flammable or combustible gas is present. Doing so may cause the gas to ignite or explode.

HDD RAM RW(VR) RW(VF) R RW CARD

## Turning Off the Recording Indicator Beneath the Lens

The recording indicator beneath the lens lights red while recording to indicate that you are recording.

You can turn the indicator off when recording through reflective objects such as glass or a fish tank, etc., so its reflection is not recorded.

## Turning Off/On the recording indicator

**1** During record pause, press **MENU**.

**2** Select "Initial Setup" ► "Record LED" ► "On"/"Off"

**3** Press the confirmation button to confirm, then **MENU** to end.

- The recording indicator setting is not displayed in the on-screen information.
- Even if the recording indicator is set to "Off", it will still light while the self-timer is counting down (p.79).

HDD (RAM) (RW (VR)) (RW (VF)) (R) (RW)

## Changing the Movie Quality (VIDEO Mode)

You can change the movie recording quality to make high quality recordings or lower the quality to record over longer periods of time.

### HDD movie quality and recordable time (DZ-HS903A)

Video Mode	Quality	Recordable time
XTRA*	Best	Approx. 7 hrs.
FINE	High	Approx. 11 hrs.
STD	Extended recording	Approx. 23 hrs.

### (DZ-HS803A)

Video Mode	Quality	Recordable time
XTRA*	Best	Approx. 1 hr. 50 mins.
FINE	High	Approx. 3 hrs.
STD	Extended recording	Approx. 6 hrs.

### DVD movie quality and recordable time

Video Mode	Quality	Recordable time
XTRA*	Best	Approx. 18 mins.
FINE	High	Approx. 30 mins.
STD	Extended recording	Approx. 60 mins.

\* In high temperature environments, the image quality may be degraded to an FINE equivalent.

## Switching movie quality

**1** During record pause, press **MENU**.

**2** Select "Record Functions Setup" ▶ "VIDEO Mode" ▶ a movie quality option

**3** Press the confirmation button to confirm, then **MENU** to end.  
The selected movie quality will be displayed in the LCD monitor (p.42).  
• The movie quality setting is retained in memory even if the power is turned off.

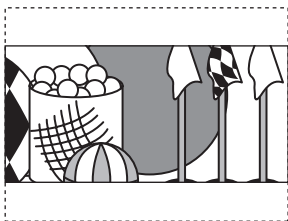
HDD (RAM) (RW (VR)) (RW (VF)) (R) (RW)

## Recording Movies for Wide-Screen TVs (16:9)

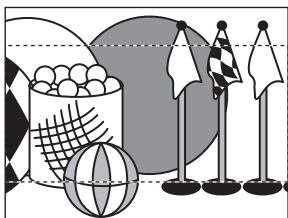
If you intend to view recorded movies on a wide-screen TV (aspect ratio 16:9), set "16:9" to "On" before recording. (When "16:9" is set to "Off", movies are recorded in 4:3 aspect ratio.)

The image appearing on the LCD screen differs according to the "16:9" setting as follows.

When "16:9" mode is On  
(Aspect ratio: 16:9)

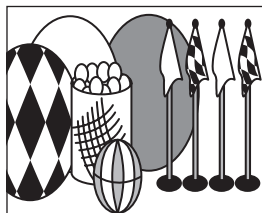


When "16:9" mode is Off  
(Aspect ratio: 4:3)



- If you intend to view recorded movies on a non wide-screen TV, set "16:9" to "Off" before recording. Otherwise, the recorded images appearing on the TV will be vertically distorted as shown in the illustration below.

4



- If you play back movies recorded in "16:9 Off" mode on this camcorder, black bands will appear on both sides of the LCD screen.

## Turning "16:9" Mode On/Off

**1** During record pause, press **MENU**.

**2** Select "Record Functions Setup" ►  
"16:9" ► "On"/"Off"

**3** Press the confirmation button to confirm, then **MENU** to end.  
• The "16:9" setting is retained in memory even when the power is turned off.

### Notes

- If "Input Source" is set to "LINE", movies are recorded in "16:9 Off" mode even if "16:9" is set to "On".
- When using DVD-RW (VF mode)/DVD-R/+RW, you cannot set "16:9" to "On" if "VIDEO Mode" is set to "STD". If you change the "VIDEO Mode" setting from "XTRA"/"FINE" to "STD" while "16:9" is set to "On", "16:9" will be set to "Off" automatically and the aspect ratio of the image on the LCD screen will become 4:3.



- When using DVD-RW (VF mode)/DVD-R, you cannot set “Input Source” to “LINE” after recording movies in “16:9 On” mode.
- When using DVD-RW (VF mode)/DVD-R, you cannot change the “16:9” setting in the middle of the disc.
- The “16:9” setting is only for movie recording and does not affect playback or still picture recording. (Movies are played back in recorded aspect ratio and still pictures are always recorded in 4:3 aspect ratio.)
- This mode does not support the ID-1/ID-2 system\*.
  - \* The system that records the information of aspect ratio (16:9/4:3) in the gaps between video signals.
- If you connect the camcorder to your TV’s S1 or S2 input terminal, the TV will be switched to wide mode automatically. For details, refer to your TV’s instruction manual. (Note that if connected by way of a video selector, the TV may not be switched to wide mode automatically.)
- If you connect the camcorder to a TV that supports only 4:3 aspect ratio display and play a DVD recorded in “16:9” mode, the image will appear vertically distorted on the TV screen. In this case, set the “TV type” setting of the camcorder to “4:3” (p.117).

- If you play a +RW recorded in “16:9” using a DVD player/recorder, in some cases the image on the 16:9 TV screen will be vertically distorted. In this case, change the related setting of the DVD player/recorder (refer to your DVD player/recorder’s instruction manual). Or use the camcorder of which “TV type” setting set to “4:3” (p.117) to play back.

**CARD****Changing Still Picture Quality (Quality)**

You can change the still picture recording quality.

It is recommended that you choose “FINE” for important recording (“Still picture size and quality” (p.177)).

**Switching still picture quality**

- 1** During record pause, press **MENU**.
- 2** Select “Record Functions Setup” ► “Quality” ► a still quality option
- 3** Press the confirmation button to confirm, then **MENU** to end.
  - The still quality setting is retained in memory even if the power is turned off.

HDD RAM +RW (VR) +RW (VF) R +RW CARD

## Inputting Audio and Video Signals From an External Device (Input Source) (DZ-HS903A)

You can input audio and video signals from an external device connected to the camcorder by changing the camcorder's setting.

See "Dubbing from another A/V device (DZ-HS903A)" (p.122) on how to connect to an external device and record images from it.

(The DZ-HS803A does not have an external input feature.)

Input Source	Purpose	On-screen display (p.42)
CAMERA	For normal use of the camcorder	—
LINE	For external input	L IN

## Switching the camcorder to external input mode

**1** During record pause, press **MENU**.

**2** ▶ Select "Record Functions Setup"  
▶ "Input Source"  
▶ "CAMERA"/"LINE"

**3** Press the confirmation button to confirm, then **MENU** to end.



- When the power is turned off, the "Input Source" setting returns to "CAMERA".

CARD

## Changing Capturing Still Picture Quality for External Input (PHOTO Input) (DZ-HS903A)



When using a card and "Input Source" is set to "LINE" (see the left column), you can capture a still picture from the movie incoming from the connected external device using the same method explained on p.56.

You can choose either of the two capture qualities (only for a movie from an external device) as shown in the table below.

PHOTO Input	Explanation	On-screen display (p.42)
Frame	High quality and suitable for a movie that does not contain much movement. If you choose this option for a movie with much movement, the captured image may be blurred.	
Field	Select this option for a movie with more action to reduce the chance of capturing a blurred image.	

## Switching capture quality

**1** During record pause, press **MENU**.

**2** Select "Record Functions Setup"   
"PHOTO Input"   
"Frame"/"Field"

**3** Press the confirmation button to confirm, then **MENU** to end.

### Hint

You can confirm the current "PHOTO Input" mode by the icon appearing on the LCD screen (p.42).

### CARD

## Using the Self-Timer

You can use the self-timer to record still photos.

**1** During still picture record pause, press **MENU**.


**2** Select "Record Functions Setup"   
"Self Timer"   
"On"

**3** Press the confirmation button to confirm, then **MENU** to exit the Menu.  
The self-timer is set and "⌚10" appears in the LCD monitor (p.42).

Press **PHOTO/SELECT** halfway to adjust the focus, then press it all the way down.

A countdown starts. In the LCD monitor, the countdown is shown as follows: "⌚10", "⌚9", .... The photo will be recorded about 10 seconds later.

During countdown, the recording indicator on the lens side also flashes.

- 4**
- To cancel the countdown and return to "⌚10", press **PHOTO/SELECT** or .
  - The self-timer operates every time **PHOTO/SELECT** is fully pressed and will not be set to "Off" until the following is conducted:
    - Set the self-timer to "Off" in the Menu.
    - Turn off the power.
    - Switch to movie recording.

### HDD

This camcorder allows you to choose from four options when dubbing images recorded on HDD to a DVD.

## Dubbing options

### • “New”

Among the scenes recorded to the HDD, scenes which have not yet been dubbed to DVD are dubbed in order from the first scene.

### • “Date”

Dubs all scenes recorded on the HDD on the same date to a DVD, beginning with the first scene.

### • “All”

Dubs all scenes recorded on the HDD to a DVD, beginning with the first scene.

### • “Select”

You can select your favorite scenes from all those recorded on the HDD, for dubbing.

## Time required for dubbing

Required time estimates for dubbing scenes approx. 30 minutes long are as follows:

VIDEO Mode	Required time*1
XTRA	Approx. 23 mins.*2
FINE	Approx. 15 mins.
STD	Approx. 8 mins.


\*1 Excluding time for finalization

\*2 Two DVDs are needed.

## Before you begin

- Prepare a recordable disc (p.31).
- Be sure to use the AC adapter/charger to power the camcorder during dubbing. Dubbing is not possible with a battery connected.
- If power is turned off and dubbing is interrupted midway, proper dubbing will not be possible.
- For details on the recording time for a scene that can be dubbed on one disc, see "Storage capacity of HDD/DVD/Card" (p.175).

## Hints for dubbing

- The maximum number of scenes that can be dubbed will vary depending on the DVD used (p.176).
- Dub marks “” appear for the thumbnails of the scenes which have already been dubbed.
- Set the “Category” to “Undubbed” if you wish to select only the scenes on the HDD that has not been dubbed yet.

## About the playlist (p.95) for dubbing

- With this camcorder, the scenes on the HDD will be dubbed to a DVD in the order they are displayed on HDD Disc Navigation screen. To dub the scenes in a different order, create a playlist in which the scenes are registered in the desired order of dubbing (p.96), and then execute dubbing.
- If you combine scenes with different recording dates on a playlist, and dub the combined scene to a DVD-RAM/DVD-RW (VR mode), the scenes will be dubbed separately for each date. However, if a combined scene is subsequently divided, the scenes may not be dubbed separately for each date.

## About dubbing scenes edited [Divide (p.103)/Combine (p.105)] or to which effects [Fade (p.106)/Skip (p.107)/Thumbnail (p.108)] are applied

- If you divide a scene using the “Edit” function, and then dub both the divided scenes to a DVD-RW (VF mode)/DVD-R/+RW, the scene will be dubbed as one scene, without the division.
- If you dub scenes combined using the “Edit” function to a DVD-RW (VF mode)/DVD-R/+RW, the two

scenes immediately before the combination (sometimes more than two scenes) will be dubbed.

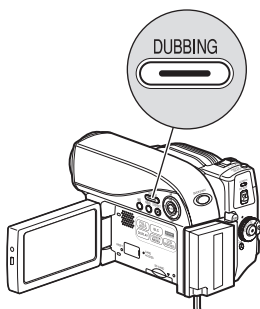
- The effects applied to the scenes on the HDD will not be passed to the scenes dubbed on a DVD-RW (VF mode)/DVD-R/+RW.

## Notes on dubbing

- A DVD-RW/DVD-R dubbed on this camcorder will not be automatically finalized. To play it back on a DVD player/recorder, be sure to finalize it on this camcorder first.
- The time shown during dubbing is approximate. If the number of scenes on the HDD is too large, or the temperature of the camcorder becomes too high, the required recording time may be longer than the time indicated on the screen.
- Please note that Hitachi will not accept any responsibility for compensation for loss of data, or direct or indirect damage if dubbing is not performed normally due to a fault in this camcorder.
- We recommend first confirming that the dubbed disc can be played back normally before deleting scenes on the HDD dubbed.

## First Dubbing (“New”)

This option allows you to dub scenes which were recorded to the HDD and have not yet been dubbed to DVD.



1

Connect the AC adapter/charger to the camcorder (p.38).

- Dubbing is not possible if a battery pack is used as a power source.

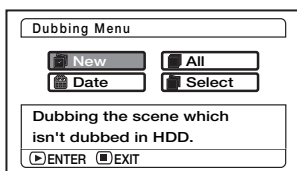
2

Turn the power switch to “HDD” (p.24).

3

Press **DUBBING**.

The dubbing menu appears.



4

Select “New”, then press the confirmation button.

5

Choose a disc for dubbing and insert it into the camcorder (p.34).

6

Check the screen for finalization setting.

If you are using a DVD-RW (VF mode) or DVD-R, you can finalize the disc continuously after dubbing is complete. Select “YES” to finalize or “NO” not to finalize.

7

Select “YES”, then press the confirmation button.

Dubbing starts.

8

When another disc is needed to continue dubbing, a message screen requesting another blank disc appears. Replace a disc with a new one.

9

After the dubbing is complete, the confirmation screen whether or not you delete the dubbed scenes appears.

- If you wish to erase the dubbed scenes, select “YES”.
- If you wish to leave them on the HDD, select “NO”.

10

Remove the disc.

- Or press **■** to end.

### Hints

- You can also display the Dubbing Menu from the Disc Navigation screen. Press **▶**, press **MENU**, select “Scene” **▶** “Dubbing” **▶** “Dubbing Menu”, and then press the confirmation button.
- If you want to use “New” dubbing for a dubbed scene, clear the dub marks (p.86).

## Dubbing All Scenes Recorded on the Same Day ("Date")

This option allows you to collectively dub all scenes recorded on the HDD on the same day.

1

Connect the AC adapter/charger to the camcorder (p.38).

- Dubbing is not possible if a battery pack is used as a power source.

2

Turn the power switch to "HDD" (p.24).

3

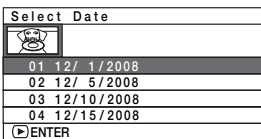
Press **DUBBING**.

The Dubbing Menu appears.

4

Select "Date", then press the confirmation button.

The "Select Date" screen appears.



5

Select a date for dubbing, then press the confirmation button.

6

Choose a disc for dubbing and insert it into the camcorder (p.34).

7

Check the screen for finalization setting.

If you are using a DVD-RW (VF mode) or DVD-R, you can finalize the disc continuously after dubbing is complete. Select "YES" to finalize or "NO" not to finalize.

8

Select "YES", then press the confirmation button.

Dubbing starts.

9

When another disc is needed to continue dubbing, a message screen requesting another blank disc appears. Replace a disc with a new one.

10

After the dubbing is complete, the confirmation screen whether or not you delete the dubbed scenes appears.




- If you wish to erase the dubbed scenes, select "YES".
- If you wish to leave them on the HDD, select "NO".

11

Remove the disc.

- Or press  to end.

### Hint

You can also display the Dubbing Menu from the Disc Navigation screen. Press , press **MENU**, select "Scene" , "Dubbing" , "Dubbing Menu", and then press the confirmation button.

## Dubbing All Scenes Recorded on the HDD (“All”)

You can dub all scenes recorded on the HDD from the beginning in sequence.

1

Connect the AC adapter/charger to the camcorder (p.38).

- Dubbing is not possible if a battery pack is used as a power source.

2

Turn the power switch to “HDD” (p.24).

3

Press **DUBBING**.

The Dubbing Menu appears.

4

Select “All”, then press the confirmation button.

The “Dubbing(All)” screen appears.

5

Choose a disc for dubbing and insert it into the camcorder (p.34).

6

Check the screen for finalization setting.

If you are using a DVD-RW (VF mode) or DVD-R, you can finalize the disc continuously after dubbing is complete. Select “YES” to finalize or “NO” not to finalize.

7

Select “YES”, then press the confirmation button.

Dubbing starts.

8

When another disc is needed to continue dubbing, a message screen requesting another blank disc appears. Replace a disc with a new one.


9

After the dubbing is complete, the confirmation screen whether or not you delete the dubbed scenes appears.




- If you wish to erase the dubbed scenes, select “YES”.
- If you wish to leave them on the HDD, select “NO”.

10

Remove the disc.

- Or press  to end.

### Hint

You can also display the Dubbing Menu from the Disc Navigation screen. Press , press **MENU**, select “Scene”  “Dubbing”  “Dubbing Menu”, and then press the confirmation button.



## Dubbing Scenes Selected ("Select")

You can select your favorite scenes from all those recorded on the HDD, for dubbing.

1

Connect the AC adapter/charger to the camcorder (p.38).

- Dubbing is not possible if a battery pack is used as a power source.

2

Turn the power switch to "HDD" (p.24).

3

Press **DUBBING**.

The Dubbing Menu appears.

4

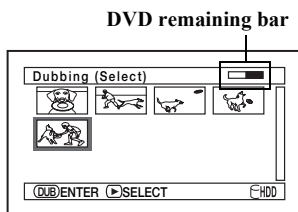
Select "Select", then press the confirmation button.

5

Choose a disc for dubbing and insert it into the camcorder (p.34).

6

Select a scene for dubbing by pressing the confirmation button.



- You can choose multiple scenes.
- You can also use **PHOTO/SELECT** to choose a scene.

7

Press **DUBBING**.

8

Check the screen for finalization setting.

If you are using a DVD-RW (VF mode) or DVD-R, you can finalize the disc continuously after dubbing is complete. Select "YES" to finalize or "NO" not to finalize.

9

Select "YES", then press the confirmation button.

Dubbing starts.

10

After the dubbing is complete, the confirmation screen whether or not you delete the dubbed scenes appears.

- If you wish to erase the dubbed scenes, select "YES".
- If you wish to leave them on the HDD, select "NO".

11

Remove the disc.

- Or press **■** to end.

### Hint

You can also display the Dubbing Menu from the Disc Navigation screen. Press **▶**, press **MENU**, select "Scene" **▶** "Dubbing" **▶** "Dubbing Menu", and then press the confirmation button.

## Displaying only Dubbed or Not Dubbed Scenes (Category)


You can display all scenes recorded on the HDD according to their dubbed status.

### Category Settings


#### “All”

All scenes will be displayed in chronological order of recording regardless of whether they have been dubbed or not.

#### “Dubbed”



Only scenes with the “” dub mark will be displayed in chronological order of recording.

#### “Un Dubbed”

Only scenes without the “” dub mark will be displayed in chronological order of recording.


### To set “Category”

**1** Press , then press **MENU**.

**2** Select “Others”  “Category”  
 a Category option

**3** Press the confirmation button.  
• The Category setting will return to “All” if you exit the disc navigation screen.



## Clearing the dub marks on Thumbnails (MARK OFF)

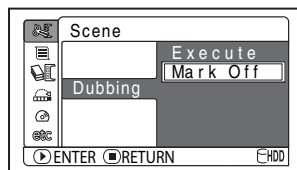
You can use “New” dubbing again by clearing the dub mark “”.

**1** Press .

**2** Choose a scene for which you want to clear the dub mark, then press **PHOTO/SELECT**, then press **MENU**.

- You can also choose multiple scenes (p.49).


Select “Scene”  “Dubbing”  “Mark Off”, then press the confirmation button.



**3**

- If you do not need to change the scenes, press the confirmation button.

**4** Press  to end.

By using the  and **MENU** buttons, you can also edit recorded scenes. The following edit functions are available on the camcorder.

### Convenient playback

The following are the functions that enable you to play back the scenes as if they were edited without changing the original data.

- **Program (p.92)**  
You can play back scenes by specifying the desired recording date. The scenes are played sequentially from the earliest one of the date.
- **Playlist (p.95)**  
You can create a playlist by gathering your favorite scenes to play back. You can also delete or add scenes on the created playlist.
- **Effect**  
There are special effect Fade (p.106) and convenient functions Skip (p.107) and Thumbnail (p.108) under the “Effect” category.

### Editing the original data

- **Deleting scenes (p.102)**
- **Dividing a movie (p.103)**
- **Combing multiple movies (p.105)**

### Other editing

- **Go To (p.109)**  
You can jump to the first or last scene among all scenes on the selected medium.

- **Information Display (p.111)**

You can choose a scene and check its recording date and time, image quality, length (for movie), and settings.

- **Lock (p.110)**

To avoid accidental deletion, you can choose stills and lock them. (You can also select all stills and lock them all.)

- **Format (p.112)**

You can erase all data from the selected medium.

## Menu Items for the Disc Navigation

After pressing **MENU** on the disc navigation screen, you can use following functions.

Function	HDD	DVD					Card	Contents	Page
		-RAM	-RW (VR mode)	-RW (VF mode)	R	+RW			
Editing	●	●	●				▲*1	You can delete unnecessary scenes, combine scenes, or divide one scene.	p.102
Applying "Effect" settings to movies	●	●	●					You can apply fade effect/skip setting to a movie and alter still images registered to thumbnails.	p.106 -108
Copying from a DVD-RAM to a card		●						You can copy photos recorded on a DVD-RAM to a card set in the camcorder. (Note that this camcorder cannot record stills on a DVD-RAM.)	p.109
Scene lock							●	You can lock any scene so that it will not be deleted by mistake.	p.110
Information display	●	●	●	●	●	●	●	You can display information on one scene or multiple scenes, such as image quality, recording time, etc.	p.111
Changing Program/Playlist title	●	●	●					You can change Program/Playlist titles originally automatically generated according to date (and also time and sequential number for Playlist).	p.93 p.101
Creating a playlist	●	●	●					You can create an original movie by changing the playback order of scenes.	p.96
Initialization	●	●	●	●		●	●	You can delete all data recorded on the HDD/DVD/Card.	p.112
Protection	●	●	●					You can protect the HDD or a disc to prevent deletion or editing by mistake.	p.113
Unprotection	●	●	●					You can cancel the protection.	p.113
Remaining display (Capacity)	●	●	●	●	●	●	●	The remaining recordable movie time or number of recordable stills is displayed.	p.114

Function	HDD	DVD					Card	Contents	Page
		-RAM	-RW (VR mode)	-RW (VF mode)	-R	+RW			
Finalization			●*2	●	●	●		You can use this camcorder to finalize any DVD-RW/DVD-R disc recorded on it so that the disc can be viewed on another compatible DVD player or device.	p.120
Unfinalization				●		●		You can unfinalize a DVD-RW (VF mode) that was finalized on this camcorder so that additional videos can be recorded on the disc.	p.121
Repeat play	●	●	●	●	●	●		You can play back scenes repeatedly.	p.56
Slide show							●	You can play back stills in succession.	p.55

\*1 Only deletion is possible

\*2 Additional recording can be made on a finalized DVD-RW (VR mode).

### Note

Adding special effects to movies is a capability of this camcorder. If you play a disc with effects set on this camcorder on another DVD recorder/player or copy such movies to your PC, the set effects will not be reflected. To copy movies to a disc with the effects playable using other DVD player/recorder, see "Dubbing from the camcorder to another A/V device" (p.124).

## ■ Menu flows for the disc navigation

After pressing **MENU** on the disc navigation screen, the Menu screen appears. The Menu varies depending on the medium as shown below.

To operate the Menu, use ◀◀▶▶/▶▶▶▶. See "How to Operate the Menu" (p.57).

### ● When using HDD/DVD-RAM/DVD-RW (VR mode)

(●: Quick Menu items)

Editing	Scene	Edit	Delete (p.102)	●
			Divide (p.103)	●
			Combine (p.105)	
			Move*1	
		Effect	Fade (p.106)	●
			Skip (p.107)	
			Thumbnail (p.108)	
		Dubbing*2 (p.80)	Execute	●
			Mark Off (p.86)	●
		Copy*3 (p.109)		●
		Select (p.49)	Start → Current	
			Current → End	
			All	
		Detail (p.111)		
	PlayList (p.96)	Select		
		Play		
		Create		
		Edit		
		Title		
		Delete		
	Program (p.92)	Select		
		Play		
		Title		
	Go To (p.109)	Top		
		End		

HDD Setting/ DVD Setting	Finalize DVD*4 (p.118)		●
	Format HDD/DVD (p.112)		●
	Protect HDD/DVD (p.113)		
	Unprotect HDD/DVD (p.113)		
	Capacity (p.114)		
	Update Control Info. (p.162)		
	Full Format*2 (p.171)		
	Category*2 (p.86)	All	
		Dubbed	
		Un Dubbed	
Others	Category*3 (p.114)	All	
		VIDEO	
		PHOTO	
	Repeat Play (p.56)	On	●
		Off	●
	TV type (p.117)	16:9	●
		4:3	●

\*1 This menu item appears only while playlist is displayed.

\*2 HDD only

\*3 DVD-RAM only

\*4 DVD-RW (VR mode) only

● **When using DVD-RW (VF (Video) mode)/DVD-R/+RW**

(●:Quick Menu items)

Scene	Select (p.49)	Start →	
		Current	
		Current →	
		End	
		All	
	Detail (p.111)		
Program (p.92)	Select		
	Play		
Go To (p.109)	Top		
	End		

DVD Setting	Finalize DVD (p.118)		●
	Unfinalize DVD* (p.121)		●
	Format DVD* (p.112)		●
	Capacity (p.114)		
Others	Repeat Play (p.56)	On	●
		Off	●
	TV type (p.117)	16:9	●
		4:3	●

\* DVD-RW (VF mode)/+RW only

● **When using a card**

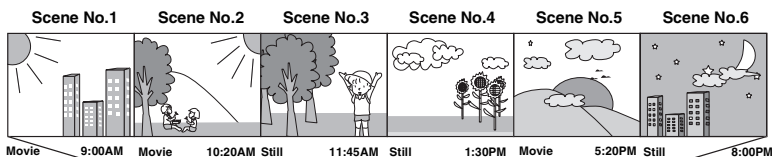
(●:Quick Menu items)

Scene	Delete (p.102)		●
	Lock (p.110)		
	Select (p.49)	Start →	
		Current	
		Current →	
		End	
		All	
	Detail (p.111)		

Go To (p.109)	Top		
	End		
Card Setting	Format Card (p.112)		●
	Capacity (p.114)		
Slide Show (p.55)	Start		●

## Choosing Scenes by Program

A program is an assembly of scenes recorded on the same date, regardless of whether they are movies or stills.



Plays back in the order from the earliest recorded scene

Recorded on December 1

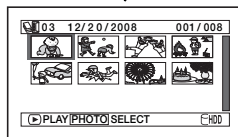
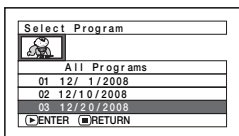
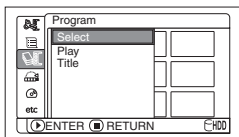
HDD RAM +RW(VR) +RW(VF) R +RW

### Switching to the display arranged by program (Program)

1 Press , then press MENU.

2 Select "Program" ► "Select", then press the confirmation button. The "Select Program" screen appears.

3 Select the program you want to watch, then press the confirmation button. The disc navigation screen of the selected program will appear.




#### Hints

- Pressing on the "Select Program" screen will restore the disc navigation screen.
- If a disc recorded on another device is loaded in this camcorder, the program may not necessarily be a collection of recordings made on the same date.
- When using a +RW, if you change the movie quality (VIDEO Mode) or wide mode (16:9) setting, programs are separately produced even if they are recorded on the same date.



HDD RAM RW(VR) RW(VF) R +RW

## ■ Playing back a program (Play)

1 Press , then press MENU.

2 Select "Program" ► "Play", then press the confirmation button.  
The "Start Program" screen appears.

3 Select the program to be played, then press the confirmation button.  
Playback begins from the first scene of the selected program.


### Hint

If "Repeat Play" is set to "On" (p.56), the selected program will be repeatedly played.

HDD RAM RW(VR)

## ■ Renaming the title of a program (Title)

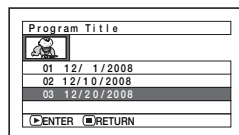
Program titles are automatically generated according to the date of recording. You can rename the program titles as you like.

1 Press , then press MENU.

2 Select "Program" ► "Title", then press the confirmation button.  
The "Program Title" screen appears.

Select the program whose title you want to change, then press the confirmation button.

3

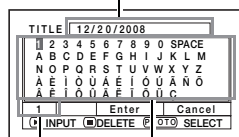


The title entry screen appears.

Select a character, then press the confirmation button.

The selected character is entered. Repeat this procedure to create a title. Up to 20 characters can be input.

### Title input bar

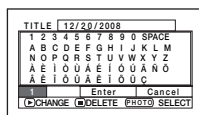


Input mode

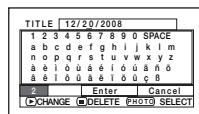
Palette for selecting characters

4 • There are the following three input modes. To change input mode, press **DISPLAY** repeatedly.

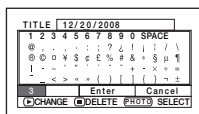
1: Capital letter mode



2: Small letter mode

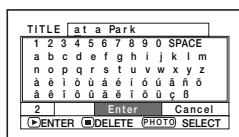


## 3: Symbol mode



- To delete a character from the title input bar, press **■**. If you press and hold **■**, all the letters will be deleted. (You can also use the **DELETE** button of the remote control.)

After the title entry is complete, position the cursor to "Enter" by pressing the cursor buttons repeatedly, then press the confirmation button.

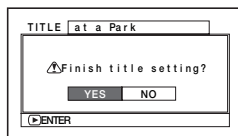


5

The confirmation screen appears.

- To cancel the entry to restore the original title, position the cursor to "Cancel", then press the confirmation button. Then the confirmation screen appears. Select "YES", then press the confirmation button.

Select "YES", then press the confirmation button.



6

The disc navigation screen of the selected program appears.

- To cancel, select "NO" and press the confirmation button, or simply press **■**. The screen returns to step 4.

### Hints for character entry (in step 4)

- You can change the cursor position by pressing **PHOTO/SELECT** or the cursor buttons repeatedly as follows:  
Title input bar → Character select palette → Input mode selector → "Cancel".
- As an alternative method of using **DISPLAY** for changing input mode, position the cursor on the input mode selector, then press the confirmation button repeatedly.

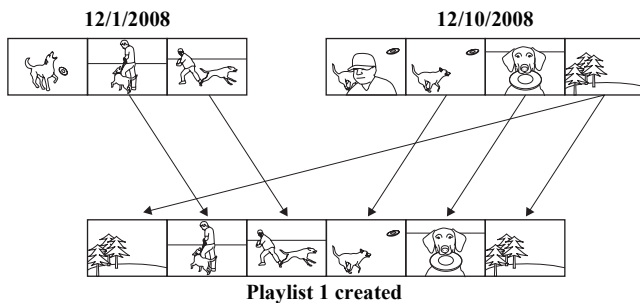
### Note

Titles set on this camcorder may not be visible on other devices.

## Playlist


### ■ What is "Playlist"?

A Playlist is a compilation of scenes from various movies. You can create a Playlist on this camcorder by gathering your favorite scenes. Since a Playlist is not created by copying data, very little HDD/DVD space is required to make one. Note, likewise, that deleting scenes from a Playlist will not increase the remaining HDD/DVD capacity for recording.



Up to 99 playlists can be created, and up to 999 scenes can be included in each playlist.

## ■ Creating a new Playlist (Create)


- 1 Press .
- 2 Select the scene to be included in the playlist, then press **MENU**.
  - You can also select multiple scenes at the same time (p.49).
- 3 Select "PlayList" ► "Create", then press the confirmation button.
 

If you do not need to change the scene(s), press the confirmation button.

When creation is complete, the created Playlist will appear on the Disc Navigation Playlist screen. The camcorder automatically generates the Playlist title from the date, time, and sequential number of Playlist creations.

  - You can rename the Playlist title as you like (p.101).
  - If you press **MENU** before pressing the confirmation button, the Submenu appears (p.103).
- 4

### Hints


- The scenes that make up a playlist are not actually copied, but are linked from their original data. Deleting a scene from a playlist will not delete the original data (scenes) from the HDD or disc. Likewise, editing scenes on a playlist will not affect the original data (scenes).
- If a scene has the fade or skip setting, or a dub mark "", that information will also be added to the playlist.
- You can add other scenes or remove unnecessary scenes to/from the created playlist (p.98–p.99).

### Note

If free space available on the HDD/DVD is insufficient, creation of a new playlist may not be possible. Delete unnecessary scenes.

## ■ Displaying a desired Playlist (PlayList)

After selecting the desired playlist, the disc navigation screen will appear.

**1** Press , then press **MENU**.

**2** Select "PlayList" ► "Select", then press the confirmation button.

The "Select PlayList" screen appears.


**3** Select the playlist you want to display, then press the confirmation button.

The disc navigation screen of the selected playlist will be displayed.

### Hint

To return the disc navigation screen to let it show all recorded scenes, select "PlayList" ► "All Programs".

## ■ Playing back a Playlist (Play)


**1** Press , then press **MENU**.

**2** Select "PlayList" ► "Play", then press the confirmation button.

The "Start PlayList" screen appears.

**3** Select the Playlist to be played, then press the confirmation button.

Playback begins from the first scene of the selected Playlist.

- To stop playback before a Playlist finishes, press . The disc navigation screen of the current Playlist will appear.

### Hint

If "Repeat Play" is set to "On" (p.56), the selected Playlist will be repeatedly played.

## ● Editing a playlist

The procedures for editing playlists are the same as editing a program or scenes. Refer to the following pages for scene dubbing/editing to apply the same procedures to dub/edit a playlist.

Dubbing .....	p.80
Dividing a scene .....	p.103
Deleting scene .....	p.102
Combining scenes.....	p.105
Arranging order of scenes .....	p.101
(only on playlist)	
Adding fade .....	p.106
Setting skip .....	p.107
Altering a thumbnail image .....	p.108
Renaming a title.....	p.93



## ■ Adding scenes to a Playlist (Edit)



1 Press , then press **MENU**.

2 Select "Playlist" , then press the confirmation button.

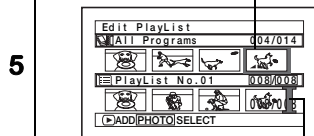
The "Edit PlayList" screen appears.

3 Select the playlist you want to edit, then press the confirmation button. The "Edit PlayList" screen appears. The upper "All Programs" row shows available scenes. And the lower "PlayList No.xx" row shows the contents of the Playlist selected.

4 Move the cursor to the lower row by pressing  and select the insertion position using .

Move the cursor to the upper row by pressing  and choose a scene you wish to add by pressing .

Scene to be added



The green "I" mark shows the insertion position.

- You can also choose multiple scenes (p.49).


6 Press the confirmation button.

- Repeat steps 4 to 6 to add other scenes.





Press .

7 The confirmation screen whether to end appears.

### Hints


- Pressing  in the middle of adding scenes will display the exit confirmation screen. Select "YES" to exit. Select "NO" to restore the "Edit PlayList" screen.
- Each time you press **DISPLAY**, the operation guide, the recording date/time of the selected scene, movie quality (VIDEO Mode), screen aspect ratio, and the recording length (when using HDD) will appear.
- If you press **MENU** in step 4 or 5, the Submenu screen for editing the Playlist will appear. You can also use this Submenu (p.103).
- If you add a scene with a dub mark, the mark will also appear on the scene in the playlist.



## ■ Deleting scenes from Playlist (Edit)

- 1 Press , then press **MENU**.
- 2 Display the "Edit PlayList" screen of the playlist you wish to delete.  
Perform steps 2 and 3 in "Adding scenes to a Playlist (Edit)" (p.98).
- 3 Press  to move the cursor to the lower row, then choose a scene you wish to delete by pressing .  
  - You can also choose multiple scenes (p.49).
- 4 Press the confirmation button.  
  - You can also use the **DELETE** button of the remote control instead of the confirmation button.
  - Repeat steps 3 and 4 to delete other scenes.
- 5 Press .  
The confirmation screen whether to end appears.

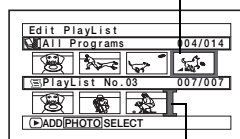
## ■ Adding scenes using the Submenu for Editing (Edit)

You can add other scenes to a Playlist using the "Edit" menu screen.


- 1 Press , then press **MENU**.
- 2 Display the "Edit PlayList" screen of the Playlist you wish to edit.  
Perform steps 2 and 3 in "Adding scenes to a Playlist (Edit)" (p.98).

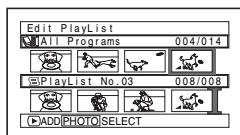
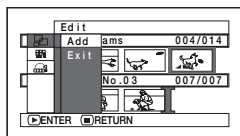
Move the cursor to the lower row by pressing  and select the insertion position using .


Scene to be added




The green "I" mark shows the insertion position.

Move the cursor to the upper row by pressing  and choose a scene you wish to add, then press **MENU**.




- You can also choose multiple scenes (p.49).
- 5 Select "Edit" , then press the confirmation button.  
    - Repeat steps 3 to 5 to add other scenes.


- 6 Press .  
The confirmation screen appears.
- 7 Select "YES", then press the confirmation button.  
The disc navigation screen of the edited Playlist appears.


## ■ Deleting scenes using the Submenu for Editing (Edit)


You can delete scenes from a Playlist using the “Edit” menu screen.

**1** Press , then press **MENU**.

**2** Display the “Edit Playlist” screen of the Playlist you wish to edit.  
Perform steps 2 and 3 in “Adding scenes to a Playlist (Edit)” (p.98).

**3** Move the cursor to the lower row by pressing  and choose a scene you wish to delete, then press **MENU**.  
• You can also choose multiple scenes (p.49).

**4** Select “Edit” , then press the confirmation button.  
• Repeat steps 3 and 4 to delete other scenes.

**5** Press .  
The confirmation screen appears.

**6** Select “YES”, then press the confirmation button.  
The disc navigation screen of the edited Playlist appears.

### Hint

If you delete all scenes on a Playlist, the Playlist itself will be erased.


## ■ Selecting scenes using the Submenu for Editing (Edit)


You can specify the range of scenes when adding or deleting consecutive multiple scenes to/from a playlist. This “Select” menu item is useful when selecting consecutive multiple scenes in items for adding or deleting scenes.

**1** Press , then press **MENU**.

**2** Display the “Edit Playlist” screen of the Playlist you wish to edit.  
Perform steps 2 and 3 in “Adding scenes to a Playlist (Edit)” (p.98).

**3** Move the cursor to the first or last scene of those you wish to choose, then press **MENU**.  
• To select all scenes, simply press **MENU**.


**4** Select “Select” , “Start → Current”/“Current → End”/“All”, then press the confirmation button.

**5** Press .  
The confirmation screen appears.

**6** Select “YES”, then press the confirmation button.  
The disc navigation screen of the edited Playlist appears.



## ■ Arranging the order of scenes in the Playlist (Edit)

- 1** Press , then press **MENU**.
- 2** Select **"PlayList"** ▶ **"Select"**, then press the confirmation button.  
The "Select PlayList" screen appears.
- 3** Select the playlist you want to edit, then press the confirmation button.  
The targeted playlist screen appears.
- 4** Select the scene you want to move, then press **MENU**.  
You can also select multiple scenes (p.49).
- 5** Select **"Scene"** ▶ **"Edit"** ▶ **"Move"**, then press the confirmation button.  
The "Move Scene" screen appears.
- 6** If you do not need to change the scene(s), press the confirmation button.
- 7** Select the position where you wish to move the scene, then press the confirmation button.  
The confirmation screen appears.
- 8** Select **"YES"**, then press the confirmation button.  
The scenes of the playlist are rearranged and the screen returns to the playlist screen.
  - To quit the move, select **"NO"** before pressing the confirmation button.


### Notes

- When using the HDD, you need to set "Category" to "All" before using this function (p.86).
- When using a DVD-RAM, you need to set "Category" to "All" before using this function (p.114).

## ■ Renaming the title of a Playlist (Title)

When a Playlist is created, its title is automatically generated from the date, time, and sequential number of creation.


You can rename the title as many times as you like.

- 1** Press , then press **MENU**.
- 2** Select **"PlayList"** ▶ **"Title"**, then press the confirmation button.  
The "PlayList Title" screen appears.
- 3** Select the playlist whose title you wish to change, then press the confirmation button.
- 4** Rename the title.
  - The method to rename the Playlist title is the same as the procedure explained in "Renaming the title of a program (Title)" (p.93).

The disc navigation screen of the Playlist whose title has been changed appears.

## ■ Deleting a Playlist (Delete)

Even if you delete a playlist, the original scenes stored on the HDD/DVD will not be deleted.

**1** Press , then press **MENU**.

**2** Select "PlayList" , then press the confirmation button.  
The "Delete PlayList" screen appears.

**3** Select the playlist you want to delete, then press the confirmation button.  
The targeted playlist screen appears.

**4** Select "YES", then press the confirmation button.  
After deletion, the disc navigation screen will be restored.  
• To quit deletion, select "NO" before pressing the confirmation button.

### Hint




If any playlist is deleted, the number of playlists will automatically be revised. (For example, if the No.2 playlist is deleted, the No.3 playlist will become the No.2 playlist, etc.)

## Deleting Scenes (Edit – Delete)

You can delete unnecessary scenes.


**1** Press .

**2** Select the scene you want to delete, then press **MENU**.  
• You can also choose multiple scenes (p.49).

**3** • For HDD/DVD  
Select "Scene" , "Edit" , then press the confirmation button.  
• For a card  
Select "Scene" , then press the confirmation button.

**4** If you do not need to change the scene(s), press the confirmation button.

**5** Select "YES", then press the confirmation button.  
The selected scene will be deleted.  
• Repeat steps 4 and 5 to delete other scenes.

**6** Press  to end the procedure.

### Hints

- You can also delete a scene by pressing **DELETE** on the remote control after placing the cursor on the scene you want to delete on the disc navigation screen.
- To delete an unwanted part of a scene on HDD/DVD-RAM/DVD-RW (VR mode) disc, divide the scene first, then delete the unnecessary part (p.103).

### Notes

- The remaining space indicator may not show any increase if the deleted amount is small (e.g. deleting a short movie, small number of stills, etc.).
- The locked scenes on a card cannot be deleted (p.110).
- If you delete all data on the HDD/DVD/card, formatting the HDD/DVD/card is recommended (p.112).

## ● Editing using the Submenu

Other than the Menu from the disc navigation screen (p.88), there is a Submenu. When you press **MENU** while in some step, Submenu appears whenever it is available.

- The Submenu appears only in steps where any of the Submenu items are usable and only usable items are displayed.
- To return to the original step, press **■**.

The table below is the example of the Submenu when **MENU** is pressed in step 3 in "Deleting Scenes (Edit – Delete)" (p.102).

Submenu items		Explanation
Edit	Delete	Deletes the selected scene.
	Exit	Returns to the disc navigation screen.
Select	Start → Current	Selects all the scenes from the top to the scene at the cursor position.
	Current → End	Selects all the scenes from the scene at the cursor position to the end.
	All	Selects all scenes.
Go To	Top	Moves the cursor to the top scene.
	End	Moves the cursor to the scene at the end.

HDD (RAM) (RW/VR)

## Dividing a Movie (Edit – Divide)

You can divide a scene into two parts. To delete an unnecessary portion of a scene, first divide the scene at the point where you want to end or start saving, and then delete the unnecessary portion.

- 1 Press **▶**.
- 2 Select the scene you want to divide, then press **MENU**.
- 3 Select "Scene" ▶ "Edit" ▶ "Divide", then press the confirmation button.  
The "Divide Scene" screen appears.

4

If you do not need to change the dividing scene, press the confirmation button again.

The selected scene will be played back.

- If you press **MENU** before pressing the confirmation button, the Submenu appears (p.103).

5

When you reach the desired point of division, press **PHOTO/SELECT**.

The confirmation screen appears.

6

Select **"YES"**, then press the confirmation button.

The selected scene will be divided, then the display will return to the "Divide Scene" screen.

- To quit division, select **"NO"** before pressing the confirmation button. The playback pause screen will appear. Press **■** to quit.

### Notes

- Scenes with the skip setting cannot be played, therefore, you cannot specify the dividing point. Remove the skip setting first to divide.
- The actual point of division may shift 0.5 seconds forward/backward from the point you have specified.
- If the division point is at the start or end of a scene, a message indicating this appears and division cannot be made.
- A movie scene of 0.5 seconds or less cannot be divided.
- If free space available on the HDD/DVD is insufficient, division will not be possible. Delete unnecessary scenes.
- If you divide a scene with the dub mark **"☑"**, the dub marks will appear on both divided scenes.


### Hints

- Search and frame advance (p.54) are useful when designating division points.
- If a fade has been added to the original scene, the **"IN"** effect will be added to the first half of the scene, and the **"OUT"** effect, to the latter half (p.106).
- Combining scenes that were divided will restore the original scene.

## Combining Multiple Scenes (Edit – Combine)

If you have recorded numerous short scenes, combining them can be convenient.

Be sure to select consecutive multiple scenes. When using the HDD or a DVD-RAM, combining scenes is possible only if “Category: All” is specified (p.86, 114). Stills cannot be combined.

**1** Press , then press **MENU**.

**2** Select “Scene” ► “Edit” ► “Combine”, then press the confirmation button.

The “Combine Scenes” screen appears.

**3** Move the cursor to the first scene you wish to combine, then press the confirmation button.

The cursor turns to 2-color (blue and yellow) frame.

- If you press **MENU** before pressing the confirmation button, the Submenu appears (p.103).


**4** Move the cursor to the last scene to be combined, then press the confirmation button.

The red cursor surrounds all the scenes to be combined.

The cursor at the last scene turns to 2-color (red and yellow) frame.


Press the confirmation button if no change is needed.


The confirmation screen that shows the top and last scenes appears.

- 5**
- If you need to change the combining range, press . The color of the cursor returns to yellow and you can reselect the scene.

Select “YES”, then press the confirmation button.

The scenes in the specified range will be combined, then the screen will return to the beginning of step 3. (On the thumbnail, the first scene of the combined range of the scenes will appear.)

- 6**
- You can combine other scenes by repeating the procedure from steps 3 to 6.
  - To quit combining scenes, select “NO” before pressing the confirmation button. The screen after pressing the confirmation button in step 3 will be restored. Press  to deselect the range cursor, then the screen returns to the beginning of step 3.

**7** Press  to end the procedure.

**Hints**

- With fade effects, the “IN” effect of the first scene in the selected range and the “OUT” effect of the last scene will be attached to the combined scene.
- Each time you press **DISPLAY**, the operation guide, the recording date/time of the selected scene, movie quality (VIDEO Mode), screen aspect ratio, and the recording length (when using HDD) will appear.

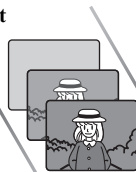
**Notes**

- Scenes in different programs (different recording dates) cannot be combined. Create a Playlist first (p.96), then combine such scenes on the Playlist.
- When using the HDD, you cannot combine scenes of different movie qualities (“VIDEO mode” settings) / wide mode (“16:9”) settings.
- If you combine scenes, both with dub marks “☒”, the dub mark will appear on the combined scene.
- If you combine scenes, both with and without dub marks, the dub mark will not appear on the combined scene.

**HDD** **RAM** **4RW(VR)****Adding Special Effects (Edit -Fade)**

You can add fading to the beginning and/or end of a scene.

There are three types of special effects:

**White****Fade Out****Fade In**

- Fades in from a white screen.
- Fades out to a white screen.

**Wipe****Fade out****Fade in**

- In: From a black screen, the image opens from a horizontal split at the center.
- Out: The image closes with two black wipes meeting at the horizontal center.

**B/W****Fade out****Fade in**

- Fades in from a black and white screen to a full color screen.
- Fades out from a full color screen to a black and white screen.

**1** Press .**2** Select the scene you want to apply a special effect to, then press **MENU**.

- You can also choose multiple scenes (p.49).

- 3** Select "Scene" ► "Effect" ► "Fade", then press the confirmation button.

The "Fade" screen appears.

- 4** If you do not need to change the scene(s), press the confirmation button.

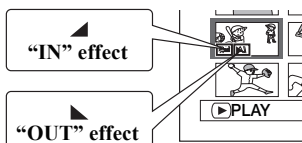
- 5** Select the special effects for "IN" or "OUT", ► "Enter", then press the confirmation button.

The "Fade" screen will be restored after a message is displayed.

- Use **◀◀/▶▶** to move the cursor to "IN", "OUT", "Enter", or "Cancel".
- Use **◀▶** to select the effect to be added, then press the confirmation button to set the effect.
- To cancel setting, select "Cancel".
- Repeat steps 2–5 to add effects to other scenes.

- 6** Press **■** to end the procedure.

The "▲" or "▼" icon will appear in the scenes for which fade in or fade out has been set.



## Notes

- If a DVD disc with a special effect created on this camcorder is played on another DVD recorder/player, or the scene is captured on a PC, the special effect will not be reflected.
- When dubbing on a DVD-RW (VF mode)/DVD-R/+RW disc, the special effect will not be reflected (p.81).

**HDD (RAM) (RW/VIR)**

## Skipping Scenes (Effect – Skip)

You can set the skip setting for scenes you do not want played back so the scenes with the setting will be skipped.

- 1** Press **▶**.

- 2** Move the cursor to the scene to be skipped, then press **MENU**.

- You can also choose multiple scenes (p.49).

- 3** Select "Scene" ► "Effect" ► "Skip", then press the confirmation button.

The "Set Skip" screen appears.

4


Press the confirmation button if no change is needed.

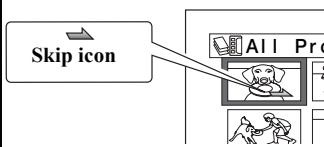
After the skip setting, the “Set Skip” screen will be restored.

- You can change the scene(s) to be skipped before pressing the confirmation button.
- Repeat this step to set the skip setting for other scenes.
- If you press **MENU** before pressing the confirmation button, the Submenu appears (p.103).


5

Press  to end the procedure.

The “” icon indicates the skip setting and appears on the scenes to be skipped.



### ● To remove the skip setting

Repeat the same procedure. The skip setting will be removed and the  icon will disappear.

### Notes

- If a DVD containing scenes with the skip setting set on this camcorder is played on another DVD recorder/player, or such scenes are captured on a PC, the skip setting will not be reflected (“Note” (p.89)).
- When dubbing on a DVD-RW (VF mode)/DVD-R/+RW disc, the skip setting will not be reflected (p.81).



HDD (RAM +RW (VR)

## Changing Thumbnail Image (Effect – Thumbnail)

Normally, the first image of the recorded scene is displayed as a thumbnail. However, you can choose another image of the scene for the thumbnail. If you set a memorable image for the thumbnail, you can know what you recorded from a glance at the Disc Navigation screen.

1 Press .

2 Move the cursor to the scene of the thumbnail you wish to change, then press **MENU**.

3 Select “Scene”  “Effect”  “Thumbnail”, then press the confirmation button.

The “Change Thumbnail” screen appears.

Press the confirmation button if no change is needed.

Playback of the selected scene begins.

4

- You can reselect the scene before pressing the confirmation button.
- If you press **MENU** before pressing **PHOTO/SELECT**, the Submenu appears (p.103).

5 When the image you wish to use as the thumbnail of the scene appears, press **PHOTO/SELECT**.

The confirmation screen appears.




6

Select "YES", then press the confirmation button.

The screen returns to the beginning of step 4.

- To change the thumbnail of another scene, repeat steps 4 to 6.
- To cancel the change, select "NO" before pressing the confirmation button.

7

Press  to end the procedure.

### Hint

Search and frame advance (p.54) are useful while you are choosing a thumbnail image.

### Notes


- A thumbnail of a still cannot be changed.
- Since the scene to which skipping is set cannot be played back, you cannot change its thumbnail. Remove the skip setting of the scene first to change the thumbnail.
- If a disc with a thumbnail change created on this camcorder is played on another DVD recorder/player, or the scene is captured on a PC, the thumbnail change will not be reflected ("Note" (p.89)).
- When dubbing on a DVD-RW (VF mode)/DVD-R/+RW disc, the thumbnail change will not be reflected (p.81).

HDD RAM +RW (VR) +RW (VF) R +RW CARD

## Go To

You can move the cursor to the scene recorded first or last using this function.

1

Press , then MENU.

2

Select "Go To" ► "Top" or "End", then press the confirmation button.

The cursor jumps to the top or last scene in the disc navigation screen.

RAM CARD

## Copying still pictures on a DVD-RAM to the Card (Copy)

Insert a DVD-RAM (recorded on an Hitachi DVD camcorder that can record still pictures on a DVD-RAM) that includes the photos you wish to copy, and a card with recordable space, into this camcorder.

- Movies cannot be copied.
- Even if all scenes, including movies, are selected to be copied, only stills will be copied.

1

Turn the power switch to "DVD".

2

Press .

3

Move the cursor to the scene to be copied, then press MENU.

- You can also choose multiple scenes (p.49).

- 4** Select "Scene" ► "Copy", then press the confirmation button.  
The "Copy to card" screen appears.

- 5** Press the confirmation button if no change is needed.
- You can change the scene(s) to be copied in this step if you wish.
  - If you press **MENU** before pressing the confirmation button, the Submenu appears (p.103).

- 6** Select "YES", then press the confirmation button.  
The screen returns to step 5 where you can select other scenes.
- To copy other scenes, repeat steps 5 and 6.
  - To cancel copying, select "NO" before pressing the confirmation button.

- 7** Press ■ to end the procedure.

### Hint

To check the still pictures on the DVD-RAM, see "Displaying Information Using the Menu Screen (Detail)" (p.111).

### Notes

- You cannot copy from a card to a DVD.
- The copied pictures on the card will retain the qualities of the original pictures on the DVD-RAM.

### CARD

## Locking Scenes on a Card (Lock)

You can lock selected stills recorded on a card so that they will not be deleted or edited by mistake.

- 1** Turn the power switch to "SD". (p.45)

- 2** Press ►.


- 3** Select the still you want to lock, then press **MENU**.
- You can also choose multiple scenes (p.49).

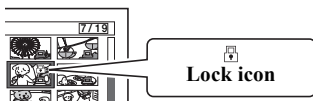
- 4** Select "Scene" ► "Lock", then press the confirmation button.  
The "Lock Set" screen appears.

- 5** Press the confirmation button if no change is needed.
- You can change the scene to be locked in this step if you wish.
  - If you press **MENU** before pressing the confirmation button, the Submenu appears (p.103).


6

Press **■** to end the procedure.

The icon “” appears on the locked still picture on the disc navigation screen.



### ● To unlock the scene

Select the scene you wish to unlock, then perform steps 4 and 5 in "Locking Scenes on a Card (Lock)". The lock icon “” will disappear and locking will be released.

#### Note

If you format the card, the locked scenes will also be deleted.

**HDD** **RAM** **+RW (VR)** **+RW (VF)** **R** **+RW** **CARD**

## Displaying Information Using the Menu Screen (Detail)

You can display various information for a scene: recording date/time and length, special effects and movie quality mode.

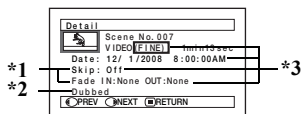
1 Press **▶**.

2 Select the scene you want to know about, then press **MENU**.

Select “Scene” **▶** “Detail”, then press the confirmation button.

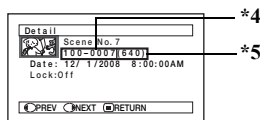
The detailed information of the scene appears.


### When using HDD/DVD



### When using a card

3



- \*1 Not displayed with DVD-RW (VF mode)/DVD-R/+RW discs.
- \*2 “Dubbed” appears only when you selected a scene from the HDD, with a dub mark  on its thumbnail.
- \*3 Not displayed with DVD-RAM/ DVD-RW/DVD-R (finalized)/+RW discs recorded on another device.
- \*4 Will not appear if the loaded card does not comply with DCF (Design rule for Camera File system).
- \*5 The number of horizontal pixels on a still picture
- Pressing **▶▶/◀◀** will display information of other scenes.

4

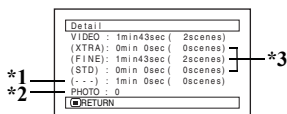
Press **■** to quit.

The disc navigation screen will be restored.

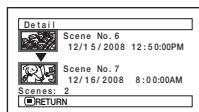
## Hints

- DCF (Design rule for Camera File system) is a unified image file format for video cameras. Image files can be commonly used for all digital devices that conform to DCF. This camcorder complies with DCF.
- When only a certain scene is displayed, you can display the information of the next scene by pressing ►► or previous scene by pressing ◀◀.
- If multiple scenes have been selected, the total recording time of the selected scenes (total number in case of stills) will appear.

### When using the HDD/DVD



### When using a card



- \*1 Displayed when the VIDEO Mode (movie quality) is unknown because, for example, the scene was recorded on another device.
- \*2 Displayed when a DVD-RAM with photos recorded using an Hitachi DVD camcorder that can record still pictures on a DVD-RAM is set in this camcorder.
- \*3 Not displayed with a DVD-RAM/ DVD-RW/DVD-R (finalized)/ +RW that was recorded on another device.

HDD RAM +RW (VR) +RW (VF) +RW CARD

## Formatting the HDD/ DVD/CARD

Formatting the HDD, or a DVD or card deletes all recorded contents. If you wish to delete all recorded contents, it is recommended that you use format, which will delete all the scenes much quicker than using the scene delete function.

### Note

Formatting will delete all the recorded contents on the HDD, disc, or card. Be careful not to delete data by mistake.

**1** Insert the medium you want to format (except for the HDD).

**2** Press ►, then press MENU.

Select "HDD Setting" or "DVD Setting" or "Card Setting" ► For "HDD Setting", select "Format HDD" then press the confirmation button.

**3** Likewise, for "DVD Setting", select "Format DVD", or for "Card Setting" select "Format Card" then press the confirmation button.

The confirmation screen appears.

Select "YES", then press the confirmation button.

- When using the HDD/DVD-RAM/+RW/Card, formatting will start.
- When using a DVD-RW disc, a screen for prompting you to select the VF mode or VR mode will appear (p.36).

\* If you choose "VR mode" when formatting a DVD-RW (VR mode), finalization will not be canceled. All contents on the disc will be erased after being formatted and the disc will be a finalized DVD-RW (VR mode) and recordable.

If you choose "VF mode" above, finalization will be canceled.

- To quit formatting, select "NO" before pressing the confirmation button.

### Notes

- It may not be possible to format a dirty or scratched disc. Such a disc cannot be used.
- This camcorder may not recognize some discs or cards that were formatted on a PC or another device.
- If you connect the camcorder and your PC using the USB cable and format a DVD or card set in the camcorder, formatting may fail and the disc or card may become unusable.
- If the camcorder is turned off during formatting the inserted disc will become unusable.

HDD RAM +RW(VR)

## Protecting the HDD/DVD

Although previously recorded movies will not be erased by recording new movies, a protect setting will ensure against accidental erasure and formatting. If the protect setting is activated, however, you will not be able to make new recordings until the protect setting is canceled.

1

Insert the disc you want to protect (if the medium you want to protect is not the HDD).

2

Press , then press MENU.

3

Select "HDD Setting" or "DVD Setting" ► For "HDD Setting", select "Protect HDD" then press the confirmation button. Likewise, for "DVD Setting", select "Protect DVD", then press the confirmation button. The confirmation screen appears.

4

Select "YES", then press the confirmation button.

- To quit protecting, select "NO" before pressing the confirmation button.
- To cancel the protect setting, repeat the same steps to select "Unprotect HDD" or "Unprotect Disc" in step 3.





**Note**

This camcorder may not be able to release the disc protection that was set by another device. In such a case, use the original device to release the protection.

HDD RAM +RW(VR) +RW(VF) R +RW CARD

## Checking the Remaining Recording Capacity on the Medium (Capacity)

You can check the available recording space on the HDD or a DVD (remaining recording duration) for recording movies, or on a memory card (the number of recordable stills) for recording stills, in the LCD monitor.

- 1** Insert the medium you want to check (except for the HDD).
- 2** Press , then press **MENU**.
- 3** Select "HDD Setting", "DVD Setting", or "Card Setting" , then press the confirmation button.  
The information of the chosen medium appears on the screen.
- 4** After checking the information, press , or press  twice.  
The display returns to record pause screen.



**RAM**

## Displaying Movies or Stills Independently (Category)

If you insert a DVD-RAM that includes photos recorded on another HITACHI camcorder, the scenes on the disc will be displayed on the disc navigation screen in the order of recording, regardless of whether they are movies or stills in the default setting.

However, you can also display only movies or stills independently (in the order of recording) by changing the "Category" setting.

(Note that this camcorder cannot record photos on the HDD or a DVD.)

- 1** Press , then press **MENU**.
- 2** Select "Others" , then press the confirmation button.

Choose one of the options shown in the following table, then press the confirmation button.

<b>3</b> Category options	Explanation
ALL	Movies and stills are displayed at the same time.
VIDEO	Only movies are displayed.
PHOTO	Only stills are displayed.

**Hint**

Once you close disc navigation screen, the "Category" setting returns to "All".

HDD RAM -RW (VR) -RW (VF) R +RW CARD

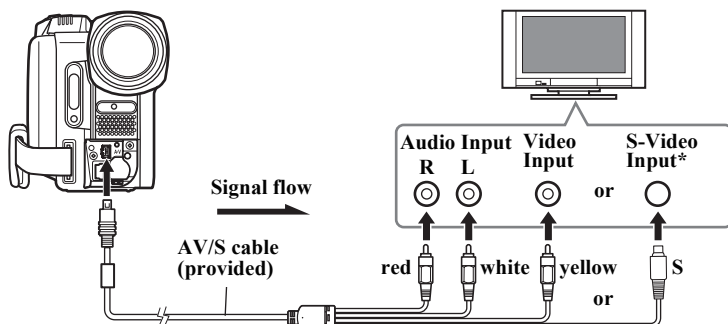
# Connecting to Your TV for Viewing

## ■ Connecting to a TV

Connect the camcorder to the TV using the provided AV/S cable as shown in the illustration below.

### Notes

- Before connecting, always turn down the volume of your TV set, to prevent feedback noise (howling) from your TV speakers.
- Insert the connector cables straight into the terminals. Inserting them at an angle may cause the terminals to break.



\* If your TV has this terminal, connect the S-Video connector instead of the Video connector.

## ■ Viewing on your TV

- 1 Turn on the TV and switch the TV input to the terminal where the camcorder is connected.

- Refer to your TV's operation manual on how to switch the TV input.

- 2 Turn on the camcorder.

The image shown in the camcorder's LCD monitor appears on the TV screen, allowing you to view playback, recording, and editing on the large screen of your TV.

### Hints

- Volume can be adjusted on your TV.
- When operating the camcorder while viewing your TV screen, using the provided remote control is convenient. However, if you are using other Hitachi-brand A/V devices, they may be operated by the camcorder's remote control. In this event, change remote control code.

### Notes

- If you have a wide-screen TV (screen ratio 16:9), and the TV is set to wide mode, the disc navigation screen may not fit within the TV screen. In this case, change your TV's wide mode setting. (Refer to your TV's operation manual.)
- Do not leave the camcorder's Menu screen and disc navigation screen displayed on your TV screen for too long. Doing so may cause damage (ghosting) on your TV screen.

**HDD** **RAM** **-RW (VR)** **-RW (VF)** **R** **+RW** **CARD**

## ■ Setting the on-screen display output On/Off (OSD Output)


When the camcorder is connected to the TV, you can suppress camcorder's on-screen information appearing on the TV screen. (The on-screen information always appear in the camcorder's LCD screen regardless of this setting.)

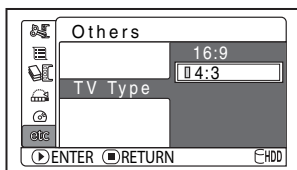
- 1 Press **MENU**.
- 2 Select "Record Functions Setup" ► "OSD Output", then press the confirmation button.
- 3 Select "On" or "Off", then press the confirmation button.



## ■ Playing back wide-mode images on a 4:3 TV (TV Type)

If you connect the camcorder to a 4:3 TV and play a disc recorded in “16:9” (wide) mode, the image on the TV will be vertically distorted. In this case, set “TV Type” to “4:3” so that you can obtain the image of the correct aspect ratio. (You will see black bands that will adjust the image aspect ratio on top and bottom of the TV screen.).

- ① Press , then press MENU.
- ② Select “Others” ► “TV Type”, then press the confirmation button.
- ③ Select “4:3”, then press the confirmation button.



# Viewing on Other Players/ Recorders

A DVD-RW (VF mode)/DVD-R disc recorded/dubbed on this camcorder is not playable on another device such as a DVD recorder/player unless the disc is finalized. Finalize a DVD-RW (VF mode)/DVD-R using this camcorder.

A DVD-RAM/DVD-RW (VR mode) disc recorded/dubbed on this camcorder can be played on a DVD recorder/player that supports 8 cm DVD-RAM/DVD-RW (VR mode) without finalizing it. However, you need to finalize a DVD-RW (VR mode) disc using this camcorder before importing scenes from the disc to your PC.

## About DVD-RW (VF mode)/DVD-R Discs and Finalization

### What you can/cannot do before finalizing a disc

#### You can:

- Record or edit scenes using the camcorder.

#### You cannot:

- Play back the disc on a device (DVD recorder/player) other than the camcorder.

### What you can/cannot do after finalizing a disc

#### You can:

- Play back the disc on a device (DVD recorder/player) other than the camcorder.
- Import scenes to your PC.
- Unfinalize the DVD-RW (VF mode) disc and use it for recording scenes.

#### You cannot:

- Record or edit scenes using the camcorder.

## About +RW Discs and Finalization

- A +RW disc set in the camcorder will be automatically finalized when you remove it from the camcorder or when you connect the camcorder to a PC (auto finalization).
- You can add recordings on an auto-finalized +RW disc.
- An auto-finalized +RW disc can be played on other devices such as a DVD recorder/player; however, no DVD video menu will appear. To have the DVD video menu displayed, finalize the +RW disc from the disc navigation screen on the camcorder.
- An unfinalized +RW disc is recordable.

## About DVD-RW (VR Mode) Discs and Finalization

A DVD-RW (VR mode) disc recorded on this camcorder can be played back on a DVD recorder/player that supports 8 cm DVD-RW (VR mode) without finalizing it.

- Before importing scenes to your PC from DVD-RW (VR mode), you need to finalize the disc using the disc navigation screen on the camcorder.
- You can use a finalized DVD-RW (VR mode) disc for recording scenes.
- Once finalized, you cannot unfinalize the disc. Formatting the disc will not unfinalize it.

## Playing back a DVD-RAM Disc on a DVD Player/Recorder

A DVD-RAM disc recorded on this camcorder can be played back on a DVD recorder/player that supports 8 cm DVD-RAM without finalizing it.

## Notes on Finalization

- Do not insert a DVD-RW (VF mode)/DVD-R disc which was recorded or dubbed, but not finalized, on this camcorder into another recording device, such as a DVD recorder and DVD drive of a PC. The recorded data may be damaged.
- Although discs recorded (and finalized) on this camcorder can be played back on recording/playing devices which comply with specific discs or recording modes, playback of all discs under all conditions is not guaranteed. If playback is not possible, use this camcorder to play back your disc.
- Playback may stop for a moment temporarily between scenes while playing on a DVD recorder/player.
- If you record or finalize a DVD-RW (VF mode)/DVD-R disc which was recorded or dubbed, but not finalized, on this camcorder using another DVD camcorder, the recorded data may be damaged.
- A DVD-RW/DVD-R/+RW that has been finalized using a PC or DVD recorder may not be playable on this camcorder depending on the editing software or recording status of the disc.
- If you insert a DVD-R disc recorded on another Hitachi camcorder into this camcorder, the disc navigation screen will appear

automatically. You cannot record or finalize such discs using this camcorder.

- Do not insert a DVD-RW/DVD-R disc recorded, but not finalized, on a recorder manufactured by a company other than Hitachi into this camcorder. Doing so may make the disc unusable.

**RW(VR) RW(VF) R +RW**

## Finalizing a Disc

### Before you begin

You must finalize a DVD-RW (VF mode)/DVD-R/+RW disc recorded/dubbed on this camcorder before playing it back using a DVD recorder/player compatible with 8 cm discs.

Note that no further recording/dubbing is possible for a finalized DVD-R.

Likewise, no further recording/dubbing is possible for a finalized DVD-RW (VF mode), though, you can unfinalize it to enable further recording/dubbing.

There may be a case for a DVD-RW (VR mode) that finalization is needed, however, further recording/dubbing is possible without unfinalizing it.

**1**

Connect the AC adapter/charger to power the camcorder (p.38).

- You cannot finalize if a battery pack is used as a power source.

**2**

Press , and then press **MENU**.

**3**

Select **"DVD Setting"** ► **"Finalize DVD"**, then press the confirmation button.

A confirmation screen for finalization appears.

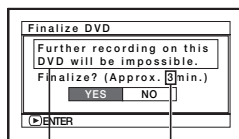
Select **"YES"**, then press the confirmation button.

The message showing that the DVD is being finalized will appear, and then the disc will be finalized.

When finalization is complete, the disc navigation screen will appear.

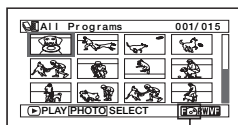
- "**F**" appears on the disc navigation screen for a finalized disc.

**4**

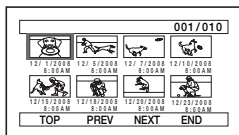


\*1 Displayed only when a DVD-R is used.

\*2 Varies depending on the length of recordings.



**Finalized DVD**



The screen above is an example when a DVD-RW (VF mode)/DVD-R/+RW is viewed on a DVD player.


### Notes

- If the disc in the camcorder has already been finalized, “Finalize Disc” does not appear in the Menu.
- The time required to finalize that appears on the “Finalize DVD” screen is only for reference.
- In case of a DVD-R, it takes longer to finalize it if recording length is short.
- For a DVD-RW/+RW which has previously been finalized, the next finalization may be quicker.

**-RW (VF) +RW**

## Unfinalizing a Disc

You can unfinalize a DVD-RW (VF mode)/+RW disc finalized on this camcorder so that additional recording can be done on it.

**1** Press , and then press **MENU**.

**2** “DVD Setting” ► “Unfinalize DVD”, then press the confirmation button.

A confirmation screen for unfinalization appears.

**3** Select “YES”, then press the confirmation button.

The message showing that the disc is being unfinalized will appear, and then the disc will be unfinalized.

### Hint

A finalized DVD-RW (VR mode) can be recorded as is, without being unfinalized.

## Dubbing With Another Audio/Video (A/V) Device

HDD RAM RW (VR) RW (VF) R RW CARD

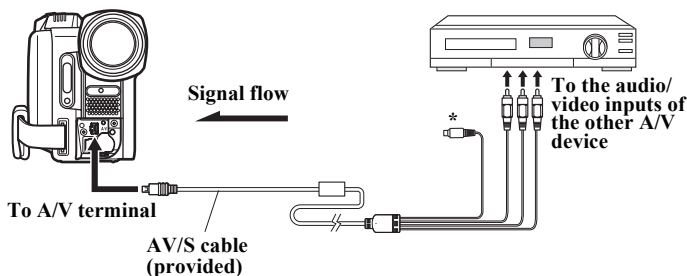
### Notes

- Before making the connection, turn off both the camcorder and the other A/V device.
- Connect the camcorder to a wall outlet instead of using the battery pack to secure the power supply during dubbing.
- If the other A/V device is HITACHI brand, the A/V device may respond to the camcorder's remote control. In such a case, change the remote control code of the other A/V device.

## ■ Dubbing from another A/V device (DZ-HS903A)

(The DZ-HS803A does not have this (external input) feature.)

Make the connection between the camcorder and the other A/V device using the provided AV/S input/output cable as shown in the illustration below.



\* The S-Video connector is unusable.

- 1 Turn on the camcorder and switch the "Input Source" setting to "LINE" (p.78).
- 2 Turn on the other A/V device and start playback.  
The playback image appears in the camcorder's LCD monitor.
- 3 Press the camcorder's record button.  
Recording (dubbing) begins.
  - Recording procedures are the same as described in "Recording Movies to the HDD" (p.24) or "Recording Movies to a DVD" (p.25).
  - When you capture a still picture, press **PHOTO/SELECT**.
  - When the power is turned off, the "Input Source" setting returns to "CAMERA".

**Hint**

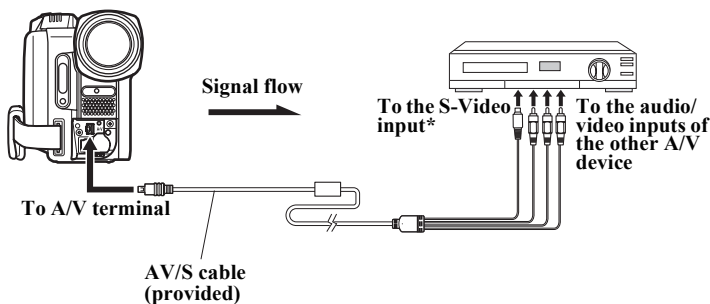
If you wish to turn off the information superimposed on the image, press camcorder's **DISPLAY** repeatedly.

**Notes**


- The recorded contents can be played back in the same manner as when playing back images recorded on this camcorder.
- Images not privately recorded may be copy protected by the copy-guard signal to protect the copyright. In such a case, "COPY PROTECTED" appears on the camcorder's LCD screen and you cannot proceed with recording. Typical copyright protected materials are commercially available DVD movies, pay-TV programs, etc.
- Some images privately recorded and without copy-guard signals may not be recorded properly depending on the signal conditions.
- When recorded images are played back on a PC, black bands may appear at the edges of the screen.
- If the input signal is interrupted, for example, by switching the channel on the TV or switching input using the video selector, recording cannot be performed properly.

## ■ Dubbing from the camcorder to another A/V device

Make the connection between the camcorder and the other A/V device using the provided AV/S input/output cable as shown in the illustration below.



\* Connect the S-Video connector if available for the other A/V device for better picture quality.

- 1 Turn on both the camcorder and the other device, then press  of the camcorder.
- 2 Choose the scene on the disc navigation screen.
- 3 Switch the other A/V device's external input to the input from the camcorder.
- 4 Press the confirmation button of the camcorder for playback and start recording using the other A/V device.

### Hints

- Sounds are reproduced from the camcorder's speaker.
- You can create a playlist (p.96) in advance to dub only scenes you wish to record to.



## About the software included

The USB cable and CD-ROM software provided with the camcorder will allow you to use the movies and stills recorded on this camcorder on your PC.

The included CD-ROM contains the software for both Windows and Macintosh.

### Windows

#### ImageMixer 3

This allows you to import the images recorded on the camcorder to your PC. You can play back imported images and edit movies, for example, cut-edit them, add titles and BGM, and add image switching effects, etc. You can also create a DVD-video (DVD-RW/DVD-R) and DVD-VR (DVD-RAM/DVD-RW).

### Macintosh

#### ImageMixer 3 Mac Edition for DVDCAM

This allows you to import the images recorded on the camcorder to a Macintosh as an MPEG file. You can play back imported images and edit movies, for example, cut-edit them, etc. You can also create a DVD-Video (DVD-RW/DVD-R).

### Windows/Macintosh

#### Media on the camcorder and read/write operations

The following table shows whether or not reading from/writing to a camcorder's medium is possible.

OS	Read/ Write	Medium		
		HDD	DVD	Card
Windows	Read	●	●	●
	Write	—	●	_* <sup>1</sup>
Macintosh	Read	●	●	●
	Write	—	_* <sup>2</sup>	_* <sup>1</sup>

\*1 Writing to a card using Explorer/Finder is possible.

\*2 A DVD-VR (DVD-RAM/DVD-RW (VR mode)) cannot be created.

### Notes

- A DVD-RW/DVD-R/+RW recorded on this camcorder must be finalized on this camcorder before using it in your PC.
- You cannot create a DVD-VR (DVD-RAM/DVD-RW) on Macintosh software.
- Since the audio format of an MPEG file imported to a Macintosh using ImageMixer 3 Mac Edition for DVDCAM will be AC3 audio, no audio will be played back with QuickTime, even after installing the optional MPEG-2 playback component; only video is played back. To play back the imported MPEG file, use ImageMixer 3 Mac Edition.
- Discs such as AACs, CPRM, or CSS, which are copyright protected, are not compatible with the software provided with this camcorder.
- The software provided with this camcorder cannot be used to write to the camcorder's HDD/+RW.

The provided software is compatible for Japanese, English, German, French, Spanish, Italian, Chinese (simplified characters) users.

Screen shots in this manual use Windows XP screens for Windows and Mac OS X 10.4 screens for Macintosh.

**Before opening the software CD-ROM, please read "Be sure to read the following before opening the package of CD-ROM" (p.182).**

## PC requirements

### Windows

OS	Windows <sup>®</sup> 2000 Professional SP3 or later Windows <sup>®</sup> XP Home Edition/Professional Windows Vista <sup>®</sup> * 64-bit Edition is excluded. * To use this software, you must log in as administrator.
PC	IBM <sup>®</sup> PC/AT <sup>®</sup> adapter (DOS/V PC)
CPU	Intel <sup>®</sup> Pentium <sup>®</sup> III 800 MHz or greater (Intel <sup>®</sup> Pentium <sup>®</sup> 4 1.7 GHz or greater is recommended.) * Operation is not guaranteed for PCs to which any alteration, such as overclocking, had been added from the original specifications.
Memory	<ul style="list-style-type: none"><li>• Windows<sup>®</sup> 2000 : 128MB or greater (256MB or greater is recommended.)</li><li>• Windows<sup>®</sup> XP : 256MB or greater (512MB or greater is recommended.)</li><li>• Windows Vista<sup>®</sup> : 512MB or greater (1GB or greater is recommended.)</li></ul>
HDD	The following free space is needed: <ul style="list-style-type: none"><li>• At time of installing the software: 300 MB or more</li><li>• At time of disc creation: approx. 3 times that of the capacity of the disc to be created</li></ul>
USB	At least one or more USB 1.1 or 2.0 free ports are necessary. (May not operate if the camcorder is connected through a USB hub.)
Others	<ul style="list-style-type: none"><li>• Display screen of 1024×768 pixel, 16 bit (High color) or greater</li><li>• Video device compliant with Direct X<sup>®</sup> 9.0c or greater version</li><li>• Sound output device</li></ul>

## Macintosh

OS	Mac OS X v10.3.9, v10.4, v10.5 * The provided software cannot be used on a Mac OS X Server.
CPU	PowerPC G4 1 GHz or higher, PowerPC G5, Intel Core
Memory	256 MB or greater (512 MB or greater is recommended.)
HDD	The following free space is needed: <ul style="list-style-type: none"><li>• At time of installing the software: Approx. 50 MB</li><li>• At time of disc creation: approx. 2 times or more that of the capacity of the disc to be created</li></ul>
Graphic	At least $1024 \times 768$ pixels (full-color is recommended.)
USB	At least one or more USB 1.1 or 2.0 free ports are necessary. (May not operate if the camcorder is connected through a USB hub.)
Compatible drive	SuperDrive mounted in Macintosh in standard

**The slot-in type drive of Macintosh is not compatible with 8 cm discs (as of August 2008). Be sure not to use this type of drive, since a disc inserted by mistake cannot be removed.**

### Notes (Windows/Macintosh)

- You must have the administrator authority of the PC before installing software.
- Operation is not guaranteed in the following cases:
  - When connected via a USB hub
  - When used on a custom-made PC
- Even if your PC satisfies the system requirements, operation malfunctions and limitations in use may occur depending on the combinations of other software and devices you are using.

# ■ Software installation

## Windows

1

Turn on the power to your PC.

If you are using your PC for other applications, quit all software you are using.

2

Insert the provided CD-ROM into your PC's CD-ROM drive.

The software installer automatically starts up, and the "Choose Setup Language" screen automatically appears.

If the "Choose Setup Language" screen does not appear, open the drive in which the CD-ROM is contained using Windows' My Computer or Explorer, and double click "Setup.exe".

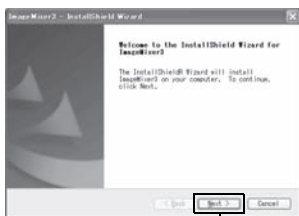
3

Select the installation language.

Select the installation language, then click "Next".

4

The "ImageMixer 3" installation screen appears. Click "Next".

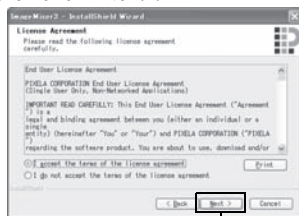


Click

Confirm the software license agreement.

Read the software license agreement carefully. If you agree with the terms, select "I accept the terms of the license agreement.", then click "Next".

5

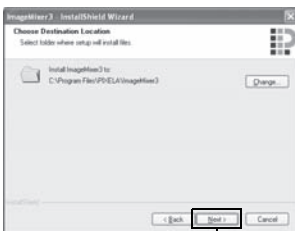


Click

Select the installation destination.

If there is no change to the installation destination, click "Next". If you wish to change the installation destination, click "Change" and specify the installation destination, then click "Next".

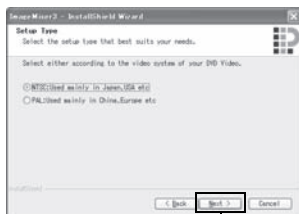
6



Click

Select your country's video system.

7

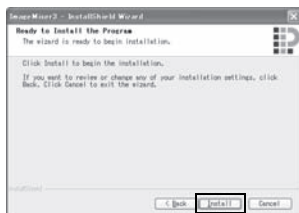


Click

Perform installation.

Preparations for installation are now complete. Click "Install" to begin the installation process.

8



Click

After installation is complete, the following message screen will appear. Click "Finish" to restart your PC. Software installation is now complete.

9



Click

## Note

After completing software installation, Direct X<sup>®</sup> installation may commence depending on your PC. In this event, follow the screen indications to install it.

## Macintosh

1

Turn the Macintosh on, and insert the provided CD-ROM into the Macintosh.

2

Double-click the "DVDCAM5000" icon displayed on the desktop.

3

Double-click the icon of "ImageMixer 3 for DVDCAM.pkg" displayed on the screen.



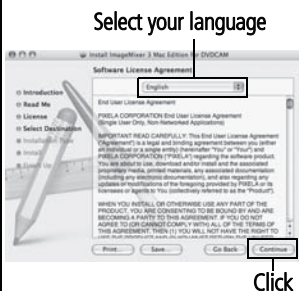
The installer will start. Click "Continue", then the operating environment and restrictions will be displayed. Read them carefully, then click "Continue", then the license agreement screen will appear.

**4 Check the license agreement.**

Choose your language to be used for software installation, and then carefully read. If you agree with the conditions, select “Continue”.

If you accept the license agreement, click “I agree”.

\* With the provided software for Macintosh, the language used with the OS will automatically be installed.

**5 Choose the installation destination and type of installation.**

Follow the on-screen instructions for operation. Installation will start.

**6 After installation is finished, the exit screen will appear. Click “Close”.**

The installation is completed and the installation screen will be closed. Remove the CD-ROM.

**Note**

You must have the administrator authority of the PC before installing software.

**■ Preparation before importing images**

When importing from a DVD-RW/DVD-R set in the camcorder, be sure to finalize the disc (p.120).

- A +RW disc set in the camcorder will be automatically finalized when you connect the camcorder to your PC (auto finalization).
- When importing from the HDD/SD DVD-RAM/SD memory card, finalization is not required.

**■ Connecting the camcorder to your PC using the provided USB cable****Before connection**

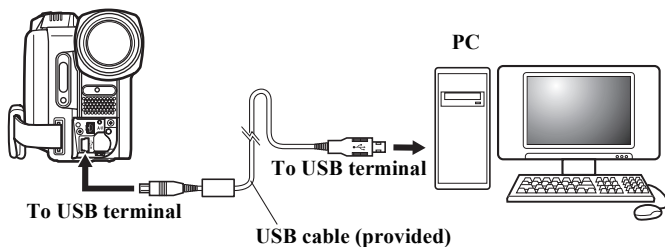
Turn the camcorder's power switch to “HDD”, “DVD”, or “SD” (the medium from which you want to import images to your PC). Note that you cannot switch to another medium after establishing a connection between the camcorder and the PC. Also turn on your PC.

**Hint**

To choose another camcorder's medium, disconnect the USB cable from the PC and turn the camcorder's power switch position to the medium you wish to use, then reconnect the USB cable.

## How to connect to your PC

Make connections as illustrated below. The PC will automatically recognize the camcorder and sometimes prompt you to restart the PC. Restart the PC if prompted.



### Notes

- The USB cable does not supply power to the camcorder. Use the AC adapter/charger to power the camcorder.
- Before connecting, disconnect any cables other than the USB cable and AC adapter/charger.
- The camcorder's ACCESS/PC indicator will light green after making the connection. The indicator will light or flash orange, while the HDD or a disc is being accessed.
- The camcorder's CARD ACCESS indicator will light or flash red while an SD memory card is being accessed.
- Nothing will appear on the camcorder's LCD monitor while the camcorder is connected to the PC.
- If you use a USB1.1 port instead of a USB2.0 port, playback may not be smooth and the process may take more time.
- For precautions when connecting to a PC, see p.145.

## Camcorder indications on the PC

If the camcorder is set to HDD or DVD mode and connected to your PC, it will be recognized as a disc drive.

If the camcorder is set to SD mode and connected to a PC, it will be recognized as a removable disc.

### Hint

The icon and drive name may vary depending on the software environment you are using.

### Note

Do not directly handle files on the HDD or DVD in the camcorder using Explorer/Finder. Doing so may cause valuable image data to be lost and damage the medium and render it unusable. Please use the provided software.

import them.

\* The number may differ if the card was recorded on another DCF conforming device.

## Operations prohibited or unable to perform during the connection

- Turning the power off.
- Switching to another medium on the camcorder  
(Do not move the power switch once you have connected to the PC.)
- HDD/DVD file operations using Explorer/Finder  
(Use the provided software.)
- Camcorder operations using the operation buttons of the camcorder
- Ejecting a disc by pressing down the **DISC EJECT** switch of the camcorder.

## Handling photos

Photos are recorded on an SD memory card in JPEG format. Use an application that can handle JPEG images.

The following shows how to import photos to your PC:

Insert an SD memory card with photos into the camcorder, and connect it to a PC. Double-click the removable disc icon displayed on the screen. The contents of the card will appear.

The photos of the card are stored in the "DCIM" - "100\*HPNX1" folder. Drag and drop them to the PC to

## How to remove/replace a DVD or remove a card during the connection

The disc or card set in the camcorder can be removed/replaced by operating the connected PC without turning off the camcorder or disconnecting the PC.



## Removing/replacing DVD

### Windows

---

Select the camcorder's drive icon using Windows Explorer or My Computer.

→ Click the right button on your mouse.

→ Select "Eject".

→ The camcorder's disc compartment lid will open.

If you insert a different DVD and close the lid, the DVD will be recognized.

### Macintosh

---

Place the drive icon of this camcorder (displayed on desktop) in Trash Box: Then the lid of the camcorder's disc compartment will open. Load another disc and close the lid, then the disc will be recognized.

## Removing SD memory card

### Windows

---

To make sure the SD memory card is not being accessed by the PC, check that the CARD ACCESS indicator on the camcorder (p.15) is not lit or flashing. Then, remove the SD memory card from the camcorder.

Note that the CARD ACCESS indicator may be lit or flashing for a while after a file on the PC is written to the SD memory card. Wait until the CARD ACCESS indicator goes out. It will sometimes take several minutes.

### Macintosh

---

Drag the drive icon (displayed on desktop) and place it in the Trash. After making sure that the icon disappears from the desktop, remove the SD memory card from the card slot of the camcorder.

## ■ Using a PC's DVD drive to read a DVD recorded on the camcorder

If your PC's DVD drive and software conform to the standards of the DVD recorded on the camcorder, you can directly insert the DVD into the DVD drive to use it.

Note that the DVD drive can handle only DVDs whose types conform to the DVD drive. You may need to change the DVD drive depending on the type of DVD recorded on the camcorder.

A finalized DVD-RW/DVD-R/+RW can be used with a DVD-ROM drive (reading only).

**Macintosh slot-in type drives are not compatible with 8 cm discs (as of August 2008). Do not use this type of drive, since a disc inserted by mistake cannot be removed.**

## Notes

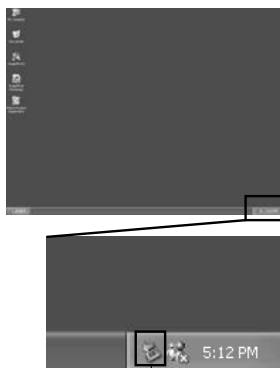
- If you wish to write images onto a new DVD-RW using your PC, do not format the disc using the camcorder.
- Some upright or slot load PC disc drives are not compatible with 8 cm discs.
- Adapters to convert 8 cm into 12 cm diameter CDs (for 8 cm CDs) are not compatible for use with 8 cm DVD-RAM/8 cm DVD-RW/8 cm DVD-R/8 cm +RW.
- Finalize a DVD-RW/DVD-R/+RW recorded on the camcorder before using it on the PC (p.120).
- Some DVD-ROM drives cannot read a DVD-RW/DVD-R/+RW recorded on the camcorder.

## ■ Before terminating PC connection (removing the USB cable) and changing the power switch setting

### Windows

1

Detach the USB cable from the PC. Quit the application and click the “Safely Remove Hardware” icon in the task tray at the bottom right of the Windows display screen.



Click

2

Select “USB mass-storage device - Drive(E:)” and click “STOP”.

The drive name (E:, etc.) will differ according to your PC.



3

Confirm the device again and click “OK”.

Disconnect the USB cable.

If an error occurs during the Safely Remove Hardware procedure, shut down Windows® and detach the USB cable.

When you are using Windows® 2000 Professional, installing Windows® 2000 SP3 or later OS updates may solve the problem. For instructions on how to obtain Windows 2000 SP3, refer to your PC maker or Microsoft Corporation.

## Macintosh

Firstly, dismount the camcorder's medium by selecting the drive icon of the camcorder (HDD, DVD, or card), and select "Eject" in the "File" menu. Disconnect the USB cable.

## How to Use the Software

See p.140 if you are a Macintosh user.

## Windows

### How to use ImageMixer 3

ImageMixer 3 allows you to import images recorded on the camcorder to the PC. You can then edit video file(s), and create a DVD-Video or DVD-VR using the video file(s).

The following shows the basic operations of ImageMixer 3. For detailed instructions about ImageMixer 3, refer to the PDF file instruction manual installed with the software. To display the PDF manual, click "Help (H)" - "ImageMixer Help (H) F1" while ImageMixer 3 is running. Explanations (for example, on how to edit video files) are described in the PDF manual.

To start ImageMixer 3, double-click the ImageMixer 3 shortcut that was created when it was installed.

\* If there is no ImageMixer 3 shortcut on the desktop, select [Start] - [Programs] or [All Programs] - [PIXELA] - [ImageMixer 3] - [ImageMixer 3].

### Note

For movies recorded on a +RW, no recording date/time will appear on ImageMixer 3.

## Viewing movies on the camcorder's HDD/ DVD using the PC screen

\* A DVD-RW/DVD-R/+RW recorded on this camcorder must be finalized using this camcorder (p.120).

1 Turn the camcorder's power switch position to the medium you wish to use with the PC.  
Then connect the camcorder to your PC using the provided USB cable.

- If you want to use images recorded on a DVD, insert the DVD into the camcorder before making the USB connection.

2 Launch ImageMixer 3.  
When ImageMixer 3 starts up, the launcher screen will appear.

Click "Playback/Import Video".

Click

3



4

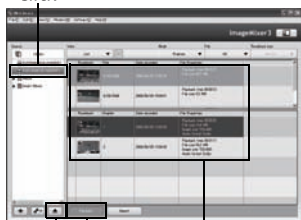
Click on "Hitachi DVDCAM" on the left side of the screen.

The recorded images on the camcorder's medium you chose will be displayed.

Double-click the thumbnail of the movie you wish to play back (or choose a thumbnail and click "Playback").

The playback screen will appear and playback will start.

Click



5

Eject button

Choose an image to play back.

- Double-click the playback screen for full-screen display. To exit the full-screen display, double-click the screen again.
- To play back images on another DVD, click the Eject button in the bottom left of the library screen with playback stopped. The disc compartment of the camcorder will open. Replace the DVD.

## Storing movies onto a PC and creating a DVD-RW/DVD-R playable on your DVD recorder/player

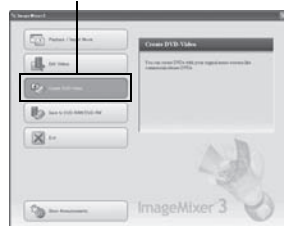
Store images recorded on the camcorder onto your PC, then you can create a DVD that you can play back using your DVD recorder/player.

Launch ImageMixer 3.

When ImageMixer 3 starts up, the launcher screen will appear. Click "Create DVD-Video".

1

Click



2

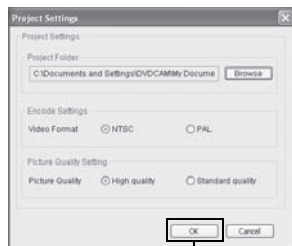
Click "Create New DVD".

The project settings screen will appear.

3

### Set up a project.

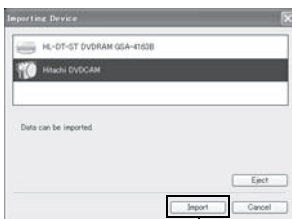
Check the project settings screen where you can specify file save location, video format, and picture quality, and change the settings if necessary. Note that you need to select "NTSC" as a video format for use in the USA. Then click "OK".



Click

4

Select "Hitachi DVDCAM (HDD)" when the power switch is set to "HDD", or "Hitachi DVDCAM" when the power switch is set to "DVD", then click "Import".



Click

The "ImageMixer 3 DVD Authoring" screen showing the images recorded on the HDD/ DVD will appear.

5

Click on a title and then select a chapter to import to the PC. Click the "Import" button to start the transfer.

Repeat this step as needed to import other chapters.

Eject button



Click

- To import images on another disc, click the Eject button and replace the disc. After a few moments, the images on the disc will appear. Repeat the procedure to import more images. (When images on a DVD-RW (VF mode)/DVD-R/+RW disc are imported, the recording date/time will not appear.)
- To import all chapters in a title at one time, click "Select all" in the editing menu at the top of the screen, and then click the "Import" button.



- To import multiple chapters, click the desired chapters while holding down the Ctrl key.

6

Click the "Authoring" tab to display the editing screen.

The video files you just imported will appear under "Source".

Choose the desired video file, and click "Add titles" to register the file.

To register a previously imported video file (using ImageMixer 3), click "File" to choose the folder in which the video file is stored.



Click

- Clicking "Theme" or "Set title menu" will allow you to change the design of the DVD-Video menu.

7

Choose the type of disc to be created (8 cm/12 cm/2-layer) using [Settings] - [Preference].

8

Click the "Write" tab to display the "Write" screen.

Check the "Create disc" box, and select the drive used for writing, and then enter a disc name.

Click



9

Insert a blank DVD-RW/DVD-R disc into the PC's DVD drive. Click the "Write" button.



Click

The confirmation screen will appear.

After checking the settings, click "OK".

Writing will start.

10

When writing is complete, the drive will open to eject the DVD. Congratulations! Your original DVD is now finished.

**Notes**

- If you load a written DVD-RW into the write drive, the dialog “Are you sure you want to delete the content of disc?” will appear. Deleting the content of the disc will erase all data on the disc. Carefully check the contents of the disc beforehand. Choosing “Yes” will display the disc erasure screen. After checking it, click the “OK” button. Once the contents on the disc have been deleted, the disc compartment on the camcorder will open. Close the cover following the message instructions.
  - If the disc contains a video file that does not conform to DVD-Video format, the video will be reformatted, resulting in deterioration of image quality.
  - If you click “File” - “Save project” before writing is complete, the operation status can be saved as a project file. You can open this saved project file later to restart the operation from the saved status.
  - A project file will be saved in the project folder that was designated when images were saved, and the file name will be automatically attached.
- If a video recorded on the HDD in this camcorder for extended hours is too long for one disc, cut/edit the video so that it can be recorded on one disc. See the on-line instruction manual of ImageMixer 3 for cut-editing of videos. To display the ImageMixer 3 manual, choose “Help”, and then “ImageMixer 3 Help (H) F1”, while ImageMixer 3 is being executed.

## Macintosh

### How to use ImageMixer 3 Mac Edition for DVDCAM

ImageMixer 3 Mac Edition for DVDCAM allows you to import images recorded on the camcorder to a Macintosh as a video file. You can play back a video file, edit it and create a DVD-Video.

The following shows the basic operations of ImageMixer 3 Mac Edition for DVDCAM.

Refer to the PDF manual installed with the software for detailed instructions of ImageMixer 3 Mac Edition for DVDCAM.

To open the PDF manual, click “Help” - “ImageMixer 3 Help” while ImageMixer 3 Mac Edition is running.

To start ImageMixer 3 Mac Edition, double-click the “ImageMixer 3 for DVDCAM” icon in the Macintosh HD (startup disk) - “Applications” - “ImageMixer 3 for DVDCAM”.

#### Notes

- The provided software cannot be used to burn a DVD-VR (DVD-RAM/DVD-RW) disc.
- With scenes recorded on a DVD-RW (VF mode)/DVD-R/+RW disc, no recording date/time will appear on ImageMixer 3 Mac Edition for DVDCAM.

## Viewing movies on the camcorder's HDD/ DVD using the Macintosh screen

- \* A DVD-RW/DVD-R/+RW recorded on this camcorder must be finalized using this camcorder (p.120).

1

Turn the camcorder's power switch position to the medium you wish to use with your Macintosh.

Connect the camcorder to the Macintosh using the provided USB cable.

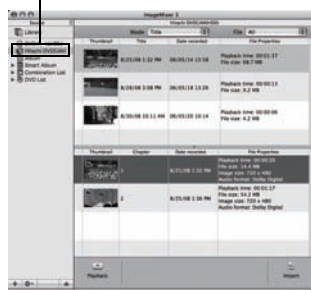
- If you want to use images recorded on a DVD, insert the DVD into the camcorder before making the USB connection.

2

Launch ImageMixer 3 Mac Edition by clicking “Hitachi DVDCAM” displayed in the left of screen.

The images recorded on the HDD (DVD when DVD is chosen) will appear.

Click

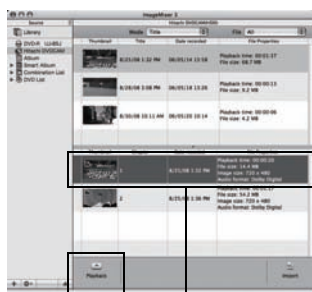




Choose the movie you wish to play back and click "Playback".

The playback screen will appear and the movie will be played back.

3



Click

Choose an image to play back.

### Hint

The DVD player may start automatically when you insert a DVD in the camcorder or the Macintosh drive. To cancel automatic start of the DVD player: from the "Apple" menu, choose "System Preferences" - "CDs&DVDs" - "When you insert a video DVD" - "Ignore".

### Notes

- When connecting the camcorder to a Macintosh for playback on a DVD player, etc., the screen for setting the drive region code will appear. Set the region code that matches your local area ("1" in the USA).
- Normal playback may not be possible, depending on the record status of the disc.

## Storing movies onto your Macintosh

ImageMixer 3 Mac Edition allows you to import movies recorded on the HDD/DVD of this camcorder to your Macintosh as MPEG files.

Using ImageMixer 3 Mac Edition, you can play back the imported video files, combine images, cut-edit them, and create a DVD-Video.

- \* A DVD-RW/DVD-R/+RW recorded on this camcorder must be finalized using this camcorder (p.120).

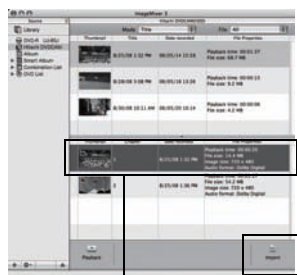
1

Perform steps 1 to 3 in "Viewing movies on the camcorder's HDD/ DVD using the Macintosh screen" (p.140)

Choose the movie you wish to import and click "Import" at the bottom of screen.

Importing will start.

2



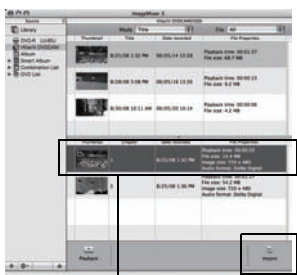
Choose an image to import.

Click

Choose the movie you wish to import and click "Import" at the bottom of screen.

Importing will start.

3



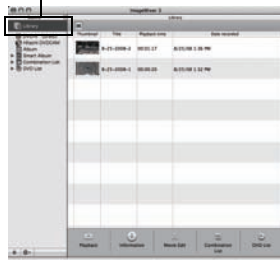
Choose an image to import.

Click

Click "Library" in the top left of the screen.

The video files imported to the Macintosh will appear in a list as shown below.

Click



4

- To play back a file, select one from the library screen and click the Playback button at the bottom of screen. Also, clicking the "Movie Edit" icon allows you to cut-edit the video.
- Refer to the PDF instruction manual of ImageMixer 3 for details on use (p.140).

### Hint

If you click "Recently Imported Files" in "Smart Album" on the left of the screen, only the files recently imported will automatically appear.

If you designate a specific condition, such as title, Smart Album will also automatically display the matching video files. For detailed use of Smart Album, refer to "How to Use" - "Creating Albums" - "Creating Smart Albums" in the PDF manual.

## Creating a DVD-RW/ DVD-R playable on your DVD recorder/player

After storing the images recorded on the camcorder onto your Macintosh (p.141), you can create a DVD-Video (DVD-RW/DVD-R) playable on your DVD recorder/player.

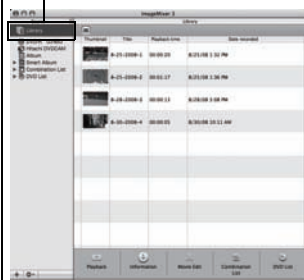
### 1 Launch ImageMixer 3 Mac Edition.

Click "Library" at the top left of the screen.

The video files imported to the Macintosh will appear in a list as shown below.

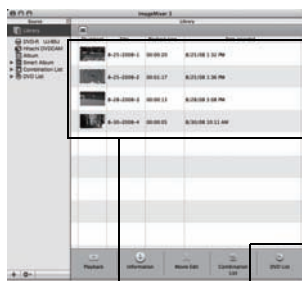
Click

2



Choose the desired video files to include on the DVD-Video, and then click "DVD List" at the bottom of screen.

3



Choose an image to import.

Click

The DVD specification screen will appear.

Choose the desired DVD menu design, size of DVD disc to be created (8 cm/12 cm), and picture quality. Click "OK".

4



Click

The created DVD list will be added.

- The DVD list is registered as "Untitled". Double-click "Untitled" to change the name of the DVD list. The name of the DVD list will become the name of the disc.

**Hints**

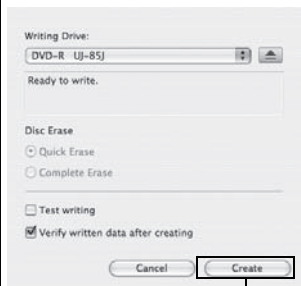
- You can also use Album or Smart Album to easily prepare a DVD creation list, by choosing the video files to create a DVD-Video with, and then clicking “DVD List” at the bottom of the screen.
- Even after creating a DVD list, you can drag a video file from the library and drop it on the DVD list on the left of screen to add the file.
- While a DVD list is displayed, click the Utility Menu button at the bottom of the screen and select “Edit DVD List”. You can reselect and set the DVD menu design, the size of the DVD disc, and the picture

The writing screen will appear after clicking “Write”.

**Choose the drive that you use for writing, and then click “Create”.**

Writing to DVD will start.

6



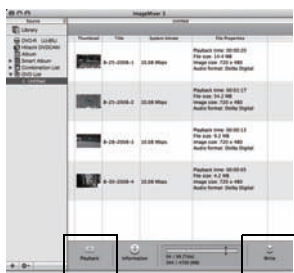
Click

- If you wish to create multiple DVDs with the same contents, choose “Yes” for the message “Do you want to create another disc?” that will be displayed after a DVD is created.

**Write the files to a DVD by clicking “Write” at the bottom of the screen.**

Before clicking “Write”, you can double check the video files in the DVD list. Select the video file you wish to check and click the Playback icon at the bottom of the screen.

5



Click to check

Click

**Hints**

- If you load a written DVD-RW in the write drive, the prompt “Are you sure you want to delete the contents of disc?” will appear. Deleting the content of disc will erase all data on the disc. Carefully check the content of the disc before erasing.
- If the disc contains a video file that does not conform to DVD-Video format, the video will be formatted, resulting in deterioration of image quality.

## ■ Uninstalling the software

### Windows

Use “Control Panel” to open “Add or Remove Applications”, select the application to be uninstalled from the displayed list of applications, and then click the “Change/Remove” button.

#### Notes

- After uninstalling the software, restart your PC.
- Administrative privileges are required to conduct uninstallation.

### Macintosh

Drag and drop the following folders/files to the Recycle Bin:

- /Application/ImageMixer 3 for DVDCAM
- /User/Movies/ImageMixer 3 for DVDCAM
- /User/Library/Application Support/ImageMixer 3 for DVDCAM
- /User/Library/Preferences/com.PIXELA.ImageMixer 3.DVDCAM.plist
- /Library/Receipts/ImageMixer 3 for DVDCAM.pkg

#### Notes

- “User” will depend on the login user name.
- Administrative privileges are required to conduct uninstallation.

## Precautions When Connecting to a PC

- **When connecting the camcorder to a PC, use the AC adapter/charger as a power source.**

Although you can also use the battery pack, if the camcorder power is cut during data transfer, your valuable recorded data may be lost. If this occurs while writing to disc, the disc will no longer be usable.

- **While accessing the camcorder from a PC, do not plug or unplug the cables.**

If you plug or unplug the USB cable (provided) or the power source (power cable and DC power cord) while the ACCESS/PC indicator or CARD ACCESS indicator is lit or flashing, your valuable recorded data may be lost. If this occurs while writing to disc, the disc will no longer be usable.

- **When you connect this camcorder to your PC, disconnect all the cables except for the AC adapter/charger and the USB cable.**

- **Make sure the camcorder does not overheat. (Operations conducted with the camcorder and PC connected should be limited to a rough standard of approx. 30 minutes within environmental conditions at approx. 86°F (30°C).)**

If the camcorder overheats, camcorder operations may not function properly. In particular, if an error occurs while writing to DVD-R, the disc will no longer be usable. Make sure to prevent the camcorder from overheating. As extended time will be required to import lengthy scenes recorded to the HDD to your PC, make sure that the camcorder does not overheat.

## Contact Information

- The provided software does not import the camcorder's editing features, such as the fade settings and Playlist contents.
- If the camcorder is connected via a USB hub or to a USB port on the PC's front panel or keyboard, the camcorder may not be recognized by the PC. If this happens, connect the camcorder to a USB port on the PC's rear panel.
- If the camcorder power is off, it cannot be connected to a PC.
- Do not use a PC application to finalize a DVD-RW/DVD-R recorded on this camcorder. Doing so will make the disc unusable.
- Although reading data from the camcorder or writing data to the camcorder may be possible using software other than the provided software, operation is not guaranteed.
- If the PC is started from suspend mode (or sleep or standby) with the camcorder connected to the PC, the camcorder may not be recognized. Disconnect the camcorder from the PC, and restart the PC.
- Multiple camcorders cannot be connected to the PC at the same time.
- Although it is stated that discs created using the provided software can be played back on devices compliant with those respective disc types, playback on all devices is not guaranteed. There are instances when playback is not possible depending on the playback device or disc recording condition.

- Inquiries on the software provided with this camcorder should be directed to the following.

Support Center phone numbers for software provided:

**PIXELA CORPORATION**

+1-800-458-4029 (Toll-free)

+1-213-341-0163

URL:

<http://www.pixela.co.jp/oem/hitachi/e/index.html>

- For inquiries on connecting a PC to this camcorder:

**Hitachi Camcorder PC Software Support Center**

URL:

<http://dvdcam-pc.support.hitachi.ca/>

### Optional Accessories

#### CAMERA ACCESSORIES

Wide conversion lens (DZ-WL1)

Tele-conversion lens (DZ-TL1)

Step-up ring (DZ-SR3037)

- When using camera accessories, be sure to read the instruction manuals for each accessory.

#### POWER SUPPLY

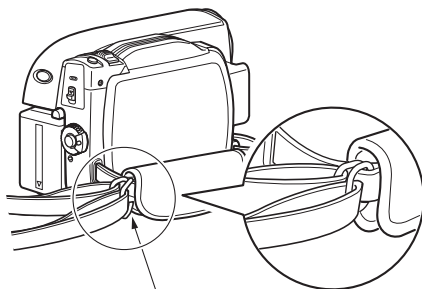
Battery (DZ-BP14SW)

Battery (DZ-BP21SW)

- Refer to the catalog for details.
- The models and specifications of the optional accessories shown on this page are subject to change, and their production may be discontinued.

### Attaching the Shoulder Strap (Commercially Available)

Refer to the instruction manual of a shoulder strap.



**Pass the shoulder strap ends through the loops of the hand strap.**

## Error Messages

*If an error message appears while operating the camcorder, refer to the following table for details and remedies. Messages are arranged in alphabetical order.*

Message	Cause & Troubleshooting	Reference page
<p>(1) Data error in a part of image file. Repair data now?</p> <p>(2) Found error in image file. Repair data now?</p> <p>(3) Data error in all image file. Repair all data now?</p>	<p>The system cannot normally complete writing of a file if the power is turned off for some reason during recording or editing. Selecting “YES” will automatically repair the video file, but even if “NO” is selected, the same message will appear when the camcorder is turned on next time. (Do not remove the disc while the camcorder is recognizing it. Removing the disc will deactivate the file repair function.)</p> <p>Follow the instructions on screen, taking note of the following cautions:</p> <ul style="list-style-type: none"> <li>• Be sure to use the AC adapter/charger to power the camcorder when repairing data. Repair is not possible using a battery. If a battery is attached, turn the power switch off, connect the AC adapter/charger, and then turn the power back on and follow the on-screen instructions.</li> <li>• If message (1) appears when using the HDD, a battery can be used for repair (if the battery charge indicator shows more than half charged).</li> <li>• Repair will normally take several minutes, but it may take up to one hour.</li> <li>• Data may not be repaired, depending on the timing when power was turned off.</li> <li>• Data may not be repaired normally if data recorded on another recorder is mixed in.</li> <li>• The repaired data may differ from the original recorded content due to deleted defects.</li> <li>• Since the date/time for repair is added to the repaired data (only the corrected portion for partial repair), the original date/time information will be lost.</li> <li>• Since all movies, and then all stills, are repaired, the order of recorded contents will be lost in case of message (2) or (3) only.</li> <li>• See *1 on p.156.</li> </ul>	—




Message	Cause & Troubleshooting	Reference page
(1) DVD is not formatted. Format the DVD now? (2) DVD Format. Select record format. (Displayed only when DVD-RW is used.)	A DVD-RW/+RW disc that was formatted on a PC, but not for camera use is inserted.	36
All scenes are already dubbed. Please use other Dub Mode.	This message will appear if you attempt to a “New” dubbing when there are no un-dubbed scenes on the HDD. Turn off the dubbed marks on scene(s) you want to dub, or select another dubbing method.	82, 86
Auto finalizing... Please wait...	This message will appear when a +RW disc is removed after recording, or the last recorded scene was deleted. The auto-finalized +RW can be played back on a DVD recorder/player.	118
Cannot combine scene.	Only consecutive scenes can be combined.	105
Cannot combine scene of multiple programs. Create PlayList first, and then combine scenes.	Scenes in different programs (different recording dates) cannot be combined. Create a Playlist first, and then combine such scenes on the playlist.	96, 105
Cannot combine. Deselect PHOTO scenes.	Only movies can be combined.	105
Cannot combine. Select multiple scenes.	Select a range of at least 2 consecutive scenes to be combined.	105
Cannot delete scenes.	Part of a divided scene is selected for deletion. Recombine the divided scene, and then delete it.	105
Cannot divide scene.	This message will appear when the scene is extremely short due to repeated divisions.	103
Cannot execute. Change display category to All.	This message will appear if you attempt to combine or move scenes with “Category. VIDEO or PHOTO” specified.	114
Cannot execute. Unselect multiple scenes.	Division or change in thumbnail was attempted when multiple scenes were selected.	49
Cannot read DVD. Check dirt/crack/ both-sides contrary/ inserted correctly.	Error occurred while the disc was being recognized. Make sure that there is no scratch or dirt on disc, that the surface/back of disc is not reversed, and that the disc is firmly pushed against the turntable. See *3 and *4 on p.156 for troubleshooting.	11, 170

Message	Cause & Troubleshooting	Reference page
CANNOT RECORD PHOTOS	<ul style="list-style-type: none"> <li>This message will appear when the PHOTO/SELECT button is pressed with the power switch set to “HDD” or “DVD”.</li> <li>Photos cannot be recorded in HDD or DVD mode. Use a card to record photos in SD mode.</li> </ul>	27
CANNOT RECORD VIDEO	This message will appear when the REC button is pressed with the power switch set to “SD”.	24, 25
Cannot replace thumbnail on PHOTO scenes.	The thumbnail of a still cannot be changed. Only thumbnails of movies can be changed.	108
Cannot select any more scenes.	The maximum number of selectable scenes is 999.	—
CANNOT SLEEP MODE	<p>The camcorder can only enter sleep mode from record pause mode. The following conditions may also apply:</p> <ul style="list-style-type: none"> <li>No DVD is loaded, but the power switch is set to “DVD”.</li> <li>No card is loaded, but the power switch is set to “SD”.</li> <li>The HDD, DVD, or card has no remaining space.</li> <li>The HDD/DVD is protected.</li> </ul>	41
CARD ALMOST FULL	<p>Remaining space is only enough to record less than 10 stills.</p> <p>Delete unnecessary stills and try the card, or use another card.</p>	102, 176
Card error has occurred.	<ul style="list-style-type: none"> <li>The card terminals may be dirty. Wipe off dirt, and try the card again, or use another card.</li> <li>Data other than still image may be included. Use another card.</li> </ul>	33
Card error has occurred. Format the card now?	The card may have been formatted on a PC, or formatting may have been interrupted. Select “YES” to format the card.	112
Card error has occurred. Formatting is not complete.	The card may be damaged. Try again or use another card.	33
Card error has occurred. Keep card inside & restart.	Card error could have occurred during editing of scenes. Turn off the camcorder with the card inserted, connect the AC adapter/charger, and then turn it on again.	38
Card full.	Delete unnecessary stills, or use another card.	102, 176
Card is not formatted. Format the card now?	Was the card formatted on PC? Select “YES” to format the card.	112
CHECK CARD	The inserted card cannot be used in this camcorder. Use another card.	33

Message	Cause & Troubleshooting	Reference page
CHECK DVD	<ul style="list-style-type: none"> <li>A disc unusable on this camcorder may have been inserted or the disc may be damaged.</li> <li>Make sure that the type of disc is correct, and that the disc is not write-protected.</li> </ul>	32, 113
CHECK HDD	<ul style="list-style-type: none"> <li>Check to see whether the HDD is write-protected. Otherwise, the HDD may be destroyed.</li> </ul>	113
Control Information Error.	<p>Scenes may have been edited on another device, etc. Update the control information.</p> <ul style="list-style-type: none"> <li>Use another disc.</li> <li>See *3 and *4 on p.156.</li> </ul>	162 —
COPY PROTECTED	<p>The video signal input to this camcorder may be copy-guarded. Some prerecorded video materials, such as movies, are guarded against copying. Copy-guarded materials cannot be recorded on this camcorder.</p>	123
Dubbing is not complete.	This message will appear when dubbing has failed.	—
DVD error has occurred.	<ul style="list-style-type: none"> <li>Use another disc.</li> <li>See *3 and *4 on p.156.</li> </ul>	—
	<ul style="list-style-type: none"> <li>A mismatch in recording information may be caused when editing is done on another device. Format the disc or use another disc.</li> <li>Formatting the disc will erase all data on it.</li> </ul>	112
DVD error has occurred. Finalizing is not complete.	<ul style="list-style-type: none"> <li>Disc error occurred during finalizing, and finalizing failed. Replace the disc.</li> <li>See *3 on p.156.</li> </ul>	120
DVD error has occurred. Format the DVD now?	<ul style="list-style-type: none"> <li>Was the disc formatted on a PC, or formatting interrupted? Select “YES” to format the disc. Formatting the disc will erase all data on it.</li> <li>See *2 on p.156.</li> </ul>	112
DVD error has occurred. Formatting is not complete.	<p>The disc may be dirty. Remove the disc and wipe off fingerprints, dust, etc., before reusing it, or use another disc. This message may also appear if you insert a disc for which formatting was interrupted midway. In this case, try formatting the disc or use another one.</p>	112, 170
DVD error has occurred. Keep DVD inside & restart.	<p>Disc error could have occurred during editing of scenes. Turn off the camcorder with the disc being used in it, connect AC adapter/charger, and then power the camcorder again. Repair of scenes will be tried.</p>	38

Message	Cause & Troubleshooting	Reference page
DVD error has occurred. Please keep DVD inside and set power switch to "DVD".	This message appears if a disc error has occurred during dubbing. Leave the disc inserted and turn the power off. Connect the AC adapter/charger to the camcorder and set the power switch to "DVD". The video file will be repaired.	26, 38
DVD error has occurred. Unfinalizing is not complete.	This message will appear when a disc error occurs during the unfinalization process. Replace the disc.	121
DVD full. Cannot execute.	This message will appear if the capacity of the scene selected is larger than the free space on the disc. Select another scene, or use another DVD.	80
DVD must be finalized before it can be played back on DVD player or DVD recorder.	<ul style="list-style-type: none"> <li>This message will appear if you remove a DVD-RW (VF mode)/DVD-R disc that has not been finalized.</li> <li>See *5 on p.156.</li> </ul>	118
Drive overheat. Please retry later.	The temperature inside the camcorder is too high. In this case, proper writing/reading HDD/DVD may not be possible. Turn off the power, then wait for a while.	—
DVD-R* cannot dub the scene recorded in STD mode and 16:9.	<p>With a DVD-RW (VF mode)/DVD-R/+RW disc, video cannot be recorded with a combination of movie quality "STD" and 16:9 mode "On". Use a DVD-RAM or DVD-RW (VR mode) disc for dubbing.</p> <p>* "DVD-RW (VF)" will appear when using a DVD-RW (VF mode) disc, and "+RW" will appear when using a +RW disc.</p>	76
DVD-R*, Different video mode, 16:9 and 4:3 mode cannot exist together.	<p>With a DVD-RW (VF mode)/DVD-R disc, the movie quality mode and 16:9 mode cannot be changed in the middle of a disc. Change the movie to be dubbed or replace the disc with a DVD-RAM/DVD-RW (VR mode)/+RW disc.</p> <p>* "DVD-RW (VF)" will appear when using a DVD-RW (VF mode) disc.</p>	77
DVD-R*, 16:9 mode cannot be changed, when Video mode is STD.	<p>With DVD-RW (VF mode)/DVD-R/+RW discs, the setting of 16:9 mode is not possible when the Video mode is STD.</p> <p>* "DVD-RW (VF)" will appear when using a DVD-RW (VF mode) disc, and "+RW" will appear when using a +RW disc.</p>	76
DVD-R*, Input Source cannot be changed.	<p>Once a DVD-RW (VF mode)/DVD-R has been recorded in 16:9 mode, the input source cannot be changed.</p> <p>* "DVD-RW (VF)" will appear when using a DVD-RW (VF mode) disc.</p>	77

Message	Cause & Troubleshooting	Reference page
DVD-R*. Video mode and 16:9 mode cannot be changed.	With DVD-RW (VF mode)/DVD-R discs, once the movie quality and 16:9 mode are used for recording, they cannot be changed. * “DVD-RW (VF)” will appear when using a DVD-RW (VF mode) disc.	76
END OF CARD	No more recording on this card can be done. Delete unnecessary stills or use another card.	102, 176
Error occurred. Please format HDD.	An HDD error occurred which cannot be repaired. The HDD must be re-formatted. All data will be deleted.	112
Error occurred. Please replace DVD or format DVD.	<ul style="list-style-type: none"> <li>An error has occurred with the inserted DVD-RAM/ DVD-RW/+RW disc which cannot be repaired. The disc must be re-formatted. Or, use the another disc. Formatting the disc will erase all data on it.</li> <li>See *2 on p.156.</li> </ul>	112
Error occurred. Please replace DVD.	An error has occurred with the inserted DVD-R disc which cannot be repaired. Replace the disc.	—
Finalize may not be complete. Finalize again now?	This message will appear when power is supplied again and the disc is reinserted after power was shut off during finalization due to a power failure, etc. Select “YES” to make sure finalizing is complete.	120
HDD/DVD ALMOST FULL	The remaining free space of the HDD/DVD is less than one minute for video. Delete unwanted scenes, or use another disc.	102, 175
HDD full. Cannot execute.	Delete unwanted scenes.	102
HDD/DVD has no data.	This message will appear when an attempt is made to dub, playback, or editing with Disc Navigation when no scene has been recorded.	—
HDD/DVD has no Playlist.	The Playlist menu was selected in Disc Navigation, but no playlists are stored.	97
HDD/DVD includes protected scenes. Delete scenes?	The disc may be software protected from a device other than this camcorder. To release, use the device that executed the software-protect.	—
HDD/DVD is full. Cannot add control info.	The number of entered scenes has reached the limit that can be entered, so the control information for generating thumbnails cannot be added. Combine several scenes or delete them.	102, 105
HDD error has occurred.	Format the HDD before using the camcorder. Formatting the HDD will delete all data recorded on it.	112
HDD error has occurred. Format the HDD now?	Did you interrupt the formatting of the HDD? Select “YES”, and then format the HDD. Formatting the HDD will delete all data recorded on it.	112

Message	Cause & Troubleshooting	Reference page
HDD error has occurred. Formatting is not complete.	Did you interrupt the formatting of the HDD? Press the RESET button to execute system reset.	172
HDD error has occurred. Restart.	An HDD error probably occurred during editing of a video file. Turn off this camcorder, and then connect the AC adapter/charger and turn the power switch to "HDD". The video file will be repaired.	38
NO DVD	This message may appear when the camcorder or disc is moved from a cold place to a warm place. Condensation has occurred on the lens or the HDD/DVD drive. Do not remove the disc; leave the camcorder turned off in a dry place for 1 – 2 hours.	168
	Insert a disc.	34
	<ul style="list-style-type: none"> <li>The disc is not inserted correctly. Push the disc against the turntable at the center until a click is heard.</li> <li>See *3 and *4 on p.156.</li> </ul>	34
	Is the disc inserted upside down? Insert the disc with the recording side facing inward to the camcorder body.	11, 34
No more scenes. PlayList was deleted.	<ul style="list-style-type: none"> <li>All scenes were deleted from the playlist.</li> <li>If all registered scenes of a playlist are deselected, the playlist will be deleted and no options can be set.</li> </ul>	—
PlayList over limit.	The maximum number of playlists is already reached. No more playlists can be created or copied.	95
Same scenes on Play List will be deleted. Delete scenes?	This will appear when scenes to be deleted from a program on the HDD or disc are linked to a playlist. (This message will not appear if you deselect the scenes from the playlist.)	99
Scene No.xxx is too large. Please divide this scene before dubbing.	This message will appear during all scene dubbing if the data size of the scene to be dubbed is larger than the free space on one disc (approx. 1.4 GB, approx. 30 minutes in FINE mode). Divide the scene, and then dub it.	103
Scenes over limit. Cannot add scenes.	The number of scenes entered in a playlist has reached the limit that can be entered. Delete unnecessary scenes.	95, 99
Scenes over limit. Cannot divide scene.	The number of entered scenes has reached the limit that can be entered. Delete unnecessary scenes.	95, 99
Stop processing.	The  button was pressed to stop processing of multiple scenes.	—

Message	Cause & Troubleshooting	Reference page
There was no scene which can be deleted.	This message will appear if you try to delete multiple scenes with Disc Navigation when all the selected scenes have been locked. Release the lock on scenes before deleting.	102, 110
The scene from which Video mode/ Wide mode differs cannot combine.	If the power switch is set to "HDD", scenes with different VIDEO Modes and aspect ratios (16:9/4:3) cannot be combined.	105
The temperature of HDD is outside the operating temperature range. Please retry later.	This message will appear if the temperature of the HDD in this camcorder is outside the operating temperature range. Turn the camcorder off and wait for a while. The temperature will be effectively decreased if the camcorder is placed in a well-ventilated spot.	167, 174
The temperature of HDD is outside the operating temperature range. Turn off power.	This message will appear if the temperature of the HDD is outside the operating temperature range. Recording on a disc may be possible even if this message is displayed.	167, 174
This DVD cannot be used. Please replace DVD.	A disc that cannot be used on this camcorder has been loaded. Check the type of disc.	31, 32
This DVD is recorded by the PAL system. Please replace DVD.	This camcorder can use only discs recorded in the NTSC system. A disc recorded in the PAL system cannot be used.	—
UNFORMAT DVD	The disc is not formatted or it is damaged. If this message appears, be sure to format the disc on this camcorder before using it. Re-formatting even a disc used on this camcorder may be necessary (formatting will erase all recorded contents on the disc). If this message appears, try to format the disc. If the same message still appears, the disc may be damaged. Use another disc. See *2 on p.156.	112 —
UNFORMAT HDD	The HDD may not be formatted or it may be destroyed.	—
Use AC adapter/ charger.	No dubbing, HDD deletion, or disc finalization is possible with a battery. Use the AC adapter/charger.	38, 80, 120, 171
Use AC adapter/ charger. Turn off power.	Scenes cannot be repaired when the camcorder is powered by a battery. If the AC adapter/charger is unavailable in handy place, remove the disc, use the opposite side (for double sided discs), or use another disc. Repair the disc later when you can connect the AC adapter/charger.	38
Write protected. Check card.	A card with the erase prevention switch locked is inserted. Unlock the switch.	33

Message	Cause & Troubleshooting	Reference page
Write protected. Check HDD/DVD.	The HDD or disc is write-protected. Use the Disc Navigation menu to release the protection.	113

\*1

- This message may also appear if the disc is dirty. If this message appears when a recorded disc is recognized immediately after it is inserted, do not repair the disc; remove it and then use a soft cloth to clean off the dirt before using it.
- This message may also appear when condensation occurs. In this case, do not repair the disc; turn the camcorder off, wait until it dries out, and then turn it on again.
- If the repair message appears when you turn the camcorder on from off with a disc loaded after recording on it, select repair.
- If the repair message appears when recording and playback are normally possible with another disc – and no condensation has occurred, and the disc is not dirty – select repair.

\*2

- This message may also appear if the disc is dirty. In this case, do not format the disc. Remove it and then use a soft cloth to clean off the dirt before using it.
- This message may also appear when condensation occurs. In this case, do not format the disc; turn the camcorder off, wait until it dries out, and then turn it on again.
- Formatting will delete all data on the disc.

\*3

- This message may also appear when the disc is dirty. Remove the disc and then use a soft cloth to clean off the dirt before using it.
- This message may also appear when condensation occurs. Wait until the camcorder dries out, and then turn it on again.

\*4

- This message will appear when a single-sided disc is inserted the wrong way (upside down). Reinsert the disc correctly. (Insert the disc with the label printed surface facing toward the outside.)

\*5

- Do not insert a DVD-RW (VF mode)/DVD-R disc that has not been finalized into any DVD recorder. The disc may become unusable.



## Troubleshooting

*If you have any trouble with your camcorder, first use this troubleshooting guide to try to solve the problem. If the problem persists, consult your dealer. Do not attempt to make any physical repairs yourself.*

### Power supplies

Symptom	Cause and Correction	Reference page
Battery cannot be charged.	Is the DC power cord connected to the AC adapter/charger? Unplug it.	21, 38
	Is the battery abnormally hot? Remove the battery, leave it for a while to cool down, then charge it. Is the ambient temperature too low or too high? Charge the battery at 50 – 86°F (10 – 30°C).	—
	Has the battery been unused for a long time? Remove the battery, and then reattach it. If the battery does not charge after trying all of the above, it may be dead. Purchase a new battery.	38, 147
Battery weakens fast.	Are you using the camcorder where the temperature is low? A fully charged battery (DZ-BP14S/DZ-BP14SW/DZ-BP21SW) may be discharged sooner than usual at low temperatures. Keep extra batteries on hand.	37
	Battery may be dead. The performance of the battery will deteriorate if it is used for an extended period of time or frequently. Purchase a new battery.	39, 147
The CHARGE indicator on AC adapter/charger is flashing.	Is the ambient temperature too low or too high? Charge the battery at 50 – 86°F (10 – 30°C). If the battery is completely drained (for example, if it has not been used for over a year), it may take longer to begin charging. Continue charging; after awhile, the battery may recover enough voltage to begin charging normally and the CHARGE indicator will light.	21

Symptom	Cause and Correction	Reference page
Power turns off immediately after being turned on.	Is the battery charged? Charge it.	37
When power is turned on, the LCD screen will turn on and off.		
The ACCESS/PC indicator is flashing, even though nothing is displayed on the LCD monitor screen.		
Power goes off unexpectedly.	Is Power Save set to "On"? If the camcorder is on battery power and set to "Power Save: On", and is left for up to 5 minutes (default setting) without being operated, it will automatically turn off to save battery power. To restart recording, turn the power off and then turn it on again. You can also specify "Power Save: Off" to stop automatic power off.	60
	Is the camcorder set to the sleep mode? If 30 minutes or more has elapsed with the camcorder in the sleep mode, it will automatically turn off. Set the power switch to "OFF", and then turn it on again.	41
Power cannot be turned off.	Detach the battery pack or disconnect the AC adapter/charger, then press <b>RESET</b> . And then, turn on the power again.	38, 172
Even if the camcorder is off, opening the cover will cause the ACCESS/PC indicator to flash.	The camcorder will automatically turn on to recognize a disc. Closing the cover will automatically turn the camcorder off again.	34




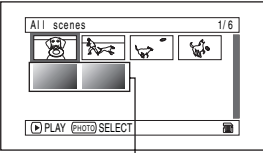
## During recording

Symptom	Cause and Correction	Reference page
Pressing the record button will not start recording.	<ul style="list-style-type: none"> <li>Check to see whether the proper type of DVD is loaded.</li> <li>Set the power switch to "HDD" or "DVD".</li> <li>If the externally input image is copy-guarded, it cannot be recorded. (DZ-HS903A)</li> <li>If the HDD/DVD is protected, cancel protection.</li> <li>No recording can be done on a finalized disc.</li> <li>Check the remaining free space on the HDD/DVD.</li> <li>If, when using a +RW disc, recorded scenes are very short or you frequently switch the video quality, recording may not be possible even when the disc has remaining space.</li> </ul>	31, 40, 113, 114, 120, 123
Recording starts but stops immediately.	Is the disc scratched or dirty? Clean the disc. If there is still no improvement, replace the disc.	170
	Is some other AV device directly connected to the video/audio input/output jack of this camcorder? If the AV device is connected via several other devices, such as an AV selector, the video signal may not be transmitted correctly. In such a case, reduce the number of devices through which the video signal is transmitted, or connect the AV device directly. (DZ-HS903A)	122
	Are you attempting to record images from a video game or PC? From some video games or PCs, images cannot be recorded on this camcorder. (DZ-HS903A)	—
No photo can be recorded	<ul style="list-style-type: none"> <li>Check to see whether the proper type of card is loaded.</li> <li>Turn the power switch to "SD".</li> <li>If the card is locked, unlock it.</li> <li>Check the remaining free space on the card.</li> </ul>	33, 45, 114
The LCD screen is hard to see.	Has the brightness of the LCD screen been adjusted? Stop recording and adjust the brightness.	20
The recording subject darkens.	If there is bright light behind the recording subject (such as a window, lighting, the sun, etc.), the subject will become dark. Change the recording direction or use the Backlight Compensation feature.	67
Brightness changes during recording.	If background brightness changes, the brightness of the subject also changes because of the camcorder's auto exposure feature. Record the subject avoiding sudden changes in background brightness.	—
The edge of a bright object or a border line of a dark object is colored.	This is not a malfunction. Avoid extreme difference in brightness by, for example, changing recording direction.	—

Symptom	Cause and Correction	Reference page
Recorded subjects moving rapidly are blurred during playback pause.	For subjects moving rapidly, select “Sports” from the Program AE options. If you record in a bright environment, you can reduce blur.	67
Recording level changes.	This is not a malfunction. The camcorder automatically adjusts the recording level according to the loudness of recorded sounds. You cannot adjust recording level manually.	—
The LCD screen appears unevenly.	Did you press the LCD monitor or the area around it? If the LCD monitor is pressed, some distortion will occur. Release your hand and leave the LCD monitor for a while. The LCD screen will recover.	—
Focus is not correct.	Is it difficult to use auto focus with your subject? Focus manually.	65
	Does the manual focus icon appear? The camcorder is set to manual focus. Focus the subject manually, or release manual focus.	64
	If the above causes do not apply, turn off the power and turn it on again.	—
An error message for repair appears.	Follow the on-screen instructions to repair. You must connect the AC adapter/charger to the camcorder to make repairs. However, as an exception, if you are using the HDD and an error occurs in part of a movie file, you can also use the battery pack for repair (if the battery charge indicator shows more than half charge). Depending on the situation, it could take from a few minutes to several hours for repair. If you wish to start recording immediately, replace the disc, and do the repair later. The removed disc can be repaired after you connect the AC adapter/charger to the camcorder.	38

## During playback

Symptom	Cause and Correction	Reference page
Recognition of the disc does not complete.	Is the disc dirty? Use a soft cloth to clean it.	170
Pressing the playback button will not start playback.	Was the image recorded by another device? Playback of some images recorded on other devices may be impossible on this camcorder.	—
	Has a scene been edited on another device? If a scene recorded on this camcorder is edited on another device, playback may not be possible on this camcorder.	—
No playback picture appears on the TV screen.	Is the TV input selector set correctly? Some TVs have multiple video input jacks. Check whether the correct input was selected on the TV to match the connected jacks. If the camcorder is connected to a VCR, set its input selector to “external input (LINE)”.	116
	Is the camcorder connected to the TV correctly? Check the connections.	115
Images recorded in “16:9” (wide) mode are vertically distorted on the TV screen.	Have you connected the camcorder to a 4:3 TV that does not support the wide mode feature? In such a case, set the “TV Type” setting of the camcorder to “4:3”.	117
Playback picture is momentarily interrupted.	Is the disc scratched or dirty? Clean the disc.	170
Movie playback quality is poor	Was the image input from an analog VCR (VHS, 8 mm) and recorded? The problem may be improved if a VCR equipped with a TBC circuit is used for playback. (DZ-HS903A)	—
Still picture is very blurred.	Was recording of external input made with “Frame” specified? Specify “Field” for “PHOTO Input” in the record functions setup menu. (DZ-HS903A)	78
No sound.	If you are viewing images on a TV, is the TV volume control set correctly? Adjust the TV volume.	116
Disc Navigation thumbnails do not appear.	The original image may have been distorted when recorded through the AV/S terminal. Record image again, without noise or distortion.	—

Symptom	Cause and Correction	Reference page
Not displayed normally in the disc navigation screen.	<p>DVD-RAM, DVD-RW(VR mode) recorded on this camcorder and edited on another device may not be displayed normally in the disc navigation screen. In this event, use "Update control info."</p> <p>If too much time is required to display the HDD disc navigation screen, try the following.</p> <ol style="list-style-type: none"> <li>1 Press , then press <b>MENU</b>.</li> <li>2 Select "Disc setting" or "HDD setting" by pressing , then press the confirmation button. The "Update Control info." confirmation screen appears.</li> <li>3 Select "YES" by pressing , then press the confirmation button. Update of control information will begin. While "Updating..." is being displayed, a black screen may appear (and time may be required). (There are some DVD which cannot be used even by following the above procedures.)</li> </ol>	—
Photos on a card cannot be played back.	<p>This camcorder can play back images from an SD memory card recorded on other digital cameras conforming to the DCF (Design rule for Camera File system) standard. The playable pixel range of image data on this camcorder is from 80×60 to 4000×3000 (horizontal/vertical). If the pixel data is outside this range, blue thumbnails will appear (thumbnails* in "Fig. 1"), meaning the image is unplayable.</p> <p>Fig. 1</p>  <p>Even when the number of pixels is within the above range, playback may not be possible, depending on the recording status of the digital cameras used. DCF (Design rule for Camera File system) is a unified image file format for digital cameras. Image files recorded using digital devices conforming to DCF can be used in these devices interchangeably.</p>	—
It takes some time to play back photos on card.	Stills with a large number of pixels will take more time to appear.	—

## When the camcorder is connected to a PC


Symptom	Cause and Correction	Reference page
The PC does not recognize the camcorder.	Check that the camcorder's power switch is set to "HDD" or "DVD".	22
	Turn the PC off and disconnect the USB cable. Then turn the PC back on and reconnect the cable.	—
	Make sure the cable is connected properly to both the PC and the camcorder.	131
An error occurs while playing back movies recorded on the camcorder using the PC.	If error occurs with the USB connection, the transfer rate is not sufficient. It is recommended that you use a USB terminal conforming to USB2.0 when connecting the camcorder.	126
The software does not run correctly on the PC.	Turn the PC and camcorder off, and try again.	—
An error occurs during writing to a disc.	The temperature of the camcorder is too high due to continuous operation. Disconnect the camcorder from the PC, remove the disc from the camcorder, and then turn it off. After a few moments, connect them again and write to a brand-new disc.	134
Transfer of images stops.	Connect the camcorder to another USB terminal of the PC. If your PC is a desktop type, it is recommended that you use a USB terminal on the back of the PC. If you are using USB2.0 extended card, it is also recommended that you install the newest version driver provided by the USB2.0 card maker.	126
	Is the disc scratched or dirty? Clean the disc.	170
The DVD drive of the PC cannot be used after the provided software was installed.	Do you use another software application to edit/write DVD? There may be a conflict between that software and the ImageMixer 3 software. This problem may be solved if you update the other DVD editing/creating software of your PC.	—
An error appears when starting ImageMixer 3.	Make sure that your PC display adapter (video card) conforms to Direct X® 9.0c.	126
The <b>DISC EJECT</b> switch does not work when the camcorder is connected to a PC.	While the camcorder is connected to the PC, use Explorer to right-click the camcorder drive icon and select "Eject".	132

Symptom	Cause and Correction	Reference page
No sound is heard when an MPEG file imported into Macintosh is played back on QuickTime with an MPEG 2 playback component adopted.	Since an MPEG file imported into Macintosh using ImageMixer 3 Mac Edition for DVDCAM uses the audio format of AC3 audio, no audio will be played back even if the QuickTime MPEG-2 playback component is introduced. Only video will be played back. Use ImageMixer 3 Mac Edition for DVDCAM for playback.	125
When the time stamp of a file on a disc is viewed on a PC, it is different from the actual recording time.	The file system of this camcorder is operated on Greenwich Mean Time (GMT), and time lag information has not been set. With Windows® as of August 2008, the time stamp of files viewed on Explorer looks different from the actual recording time. The actual recording time will appear for the date/time indication on the playback screen.	—
It takes a long time to save a video edited on the video editor of ImageMixer 3.	If you are editing a video file whose contents are different from those of the project settings, it may take some time, since the entire video file must be re-encoded. Reconfirm the project settings.	—
Cannot import from a DVD-R/DVD-RW.	Before importing, disconnect the camcorder from the PC and finalize the DVD-R/DVD-RW. (Note that you cannot add recordings to a finalized DVD-R/DVD-RW.)	118
“Hardware Removal” results in error.	Exit Windows®, and then disconnect the camcorder. If your PC uses Windows® 2000 Professional, the problem may be solved if you install Windows® 2000 SP3 or later.	134
No USB2.0 HS (high speed) connection even when USB2.0 card is used.	Make sure that you have already installed the driver provided with the USB2.0 card. You will need to install the driver provided by USB2.0 card maker in order to operate the USB2.0 card at HS (high speed).	—



## Miscellaneous

Symptom	Cause and Correction	Reference page
The camcorder does not work.	Is a fully charged battery attached? Is the camcorder powered from an AC outlet? Connect a power source.	21, 38
Power does not come on, or no operation occurs by pressing any button.	Press <b>RESET</b> , then turn on the power again.	172
	Has the camcorder been subjected to impact? The camcorder could be damaged. Consult your dealer.	—
The date and time are incorrect.	Has the camcorder been left unused for a long period of time? The internal backup memory battery may be discharged. Connect the AC power adapter/charger to recharge it.	60
Pressing <b>QUICK START</b> does not enter sleep mode.	<ul style="list-style-type: none"> <li>• The camcorder enters sleep mode when <b>QUICK START</b> is pressed only while in record pause mode.</li> <li>• Check the following causes:               <ul style="list-style-type: none"> <li>- there is no disc in the camcorder while the power switch is set to "DVD".</li> <li>- there is no SD memory card in the camcorder while the power switch is set to "SD".</li> <li>- the HDD, disc, or card does not have sufficient remaining free space.</li> <li>- An usable disc or card is inserted.</li> <li>- the disc navigation screen is appearing.</li> <li>- during playback</li> </ul> </li> </ul>	41
No scene can be deleted.	Is the cursor placed on the scene to be deleted? If the selected scene is framed in red, it can be deleted, even if you use yellow cursor to select the scene. Check the colors of the cursor and bar graph on the thumbnail screen.	49
Disc cannot be removed. (Lid will not open.)	Attach a fully-charged battery or connect the AC adapter/charger to the camcorder. Turn the power switch to "Off". Remove the disc.	21, 38
DVD-RW (VF mode)/DVD-R/+RW recorded/dubbed on the camcorder is not playable.	Finalize the DVD-RW (VF mode)/DVD-R/+RW using the camcorder.	118

Symptom	Cause and Correction	Reference page
The remote control does not operate.	Do you operate the remote control toward the remote control receiver of the camcorder?	16
	If the camcorder's remote control receiver is exposed to strong light such as direct sunshine or fluorescent light, the remote control does not work. Adjust the position or angle of the camcorder.	—
	Is the lithium battery inserted in the remote control? Check that the polarization of the lithium battery is correctly set. The lithium battery may be empty. Replace the battery to a new one.	17
	Is the camcorder powered on? If not, turn on the camcorder.	22
Disc compartment lid cannot be closed.	Is the disc correctly inserted? Remove the disc and then reinsert it.	34
	Connect a fully charged battery or AC adapter/charger, and then turn the camcorder on and try again.	21, 38
Operating noise is heard.	This is not a fault. A quiet operating sound is heard as the disc rotates during recording or playback, etc.	—
Some vibrations are felt or slight sound is heard from mechanism.	These vibrations or sound are caused by HDD/DVD drive. This does not indicate a fault.	—
<ul style="list-style-type: none"> <li>No operation can be performed because the ACCESS/PC or CARD ACCESS indicator on this camcorder remains lit or flashing.</li> <li>After a disc or card is inserted, it takes some time until recording is possible.</li> </ul>	<p>In the following cases, it will take more time than usual until operation is possible:</p> <ul style="list-style-type: none"> <li>Immediately after a disc or card is inserted.</li> <li>When a long time has elapsed since the camcorder was turned off last.</li> <li>When the temperature is greatly different from the status of previous recording.</li> <li>When a scratched or dirty disc is inserted.</li> <li>When the camcorder is subjected to strong vibrations.</li> <li>When the battery or DC power cord was disconnected before turning the power switch off.</li> </ul>	—
No image appears on the LCD screen.	<ul style="list-style-type: none"> <li>Is the camcorder set to sleep mode? Press <b>QUICK START</b> to release sleep mode.</li> <li>In playback mode, did the last scene viewed end in a wipe to black edit? Press .</li> <li>Is camcorder connected to a PC? Unplug the USB cable.</li> </ul>	41, 106, 131

## **Cautions on Use of this Product**

### **- Be sure to read this information -**

#### **● Cautions on the HDD**

##### **Save the data recorded on HDD.**

- To back up the data recorded on HDD, save it on a DVD.  
It is also recommended that you use this camcorder to dub the data. You can also use a PC to save the data on a DVD.
- It is recommended that you periodically save your recordings.

##### **Carefully check the temperature of this camcorder.**

- If the temperature of this camcorder is too high or too low, normal recording or playback may not be possible.
- If the temperature of this camcorder is too high or too low, the message “The temperature of HDD is outside the operating temperature range. Turn off power.” may appear. Even if this happens, a DVD may be usable. So it is recommended that you carry a spare DVD even if you intend to record on the HDD.

##### **Do not place this camcorder near a magnet or magnetic field.**

- If you so, recording, playback or dubbing may not be possible.

##### **Do not subject the camcorder to impacts.**

- This camcorder cannot be used while sky diving, riding on a roller coaster, bungee jumping, or other situations where weightless or large impacts may ensue.

#### **● Cautions on use**

##### **This camcorder is not intended for professional-use.**

- The camcorder is designed and produced for home-use recording and playback. Do not use the camcorder for professional applications.
- The camcorder cannot be used for a long time continuously as a surveillance camera/monitor. If you use it for a long continuous period of time, the temperature of the camcorder could exceed the limit and the recording/playback operation may slow down or other faults could occur. If this happens, turn it off and wait for a while before using it again.

##### **The LCD is a very delicate display device.**

- Do not hold the LCD monitor when lifting the camcorder.  
The LCD monitor could detach and the camcorder may fall.
- Do not press its surface with force, hit it or prick it with a sharp object.
- If you push the LCD surface, unevenness in display may occur. If unevenness does not disappear soon, turn the camcorder off, wait for a few moments, and then turn it on again.
- Do not place the camcorder with the open LCD monitor down.
- Close the LCD monitor when not using the camcorder.

**Liquid crystal display (LCD)**

- The LCD monitor is the product of highly precise technology. Among the total number of pixels (approx. 120,000 pixels for the LCD monitor), 0.01% or less pixels may be missing (black dots) or may remain lit as colored dots (red, blue, green). This shows the limitations of the current technology, and does not indicate a fault that will interfere with recording.

**Do not subject the camcorder to impact.**

- This camcorder is a precision machine. Take great care that you do not strike it against a hard object or let it fall.
- When using a tripod, firmly secure the camcorder on it. Do not use the camcorder with a tripod in a place where it is subject to severe vibrations or impact.

**Do not point directly at the sun.**

- If direct sunlight strikes the lens, the camcorder could malfunction or a fire could occur.
- Do not leave the camcorder with the LCD monitor exposed to direct sunlight: This could cause malfunctions.

**No sand or dust!**

- Fine sand or dust entering the camcorder or AC adapter/charger could cause malfunctions or defects.

**Heat on surface of product**

- As the disc mechanism will be very hot immediately after use, do not touch the metallic parts.
- The surfaces of the camcorder, AC adapter/charger and battery will be slightly warm, but this does not indicate a fault.

**Be careful of ambient temperature.**

- If the temperature of this camcorder is too high or too low, normal recording/playback may not be possible.
- Take care that the temperature of this camcorder, when connected to PC does not rise excessively (reference for usage: approx. 30 minutes at about 86°F (30°C)).
- If you need to use the camcorder for recording/dubbing to DVD in a place where the temperature is high, avoid overheating by using the camcorder intermittently.

**Be careful of moisture condensation.**

- When you move the camcorder between places where the difference in temperatures is great—such as entering a lodge from a ski slope or going out of a cooled room or vehicle—condensation (vapor in air warmed or cooled to water droplets) could occur on the lens and/or inside the camcorder. If condensation occurs, do not open the disc compartment lid or card slot cover if possible. If condensation occurs on the lens, wipe it off with a soft, dry cloth. Even if the external surface of camcorder has dried, condensation may remain inside. Therefore, turn the camcorder off and leave it in a dry place for at least 1–2 hours before using it again.

**Do not use the camcorder near strong radio waves or magnetism.**

- If the camcorder is used near strong radio waves or magnetism, such as a radio wave tower or electric appliances, recording or playback may stop, or noise could enter the video and audio that are being recorded. During playback of normally recorded video and audio, noise may also be present in picture and sound.

At worst the camcorder could malfunction.

**Do not expose the camcorder to insecticide.**

- Insecticide entering the camcorder could dirty the pickup, and in such a case, the camcorder might not operate normally.

**Do not use a generally available 8 cm CD lens cleaner.**

- Cleaning the DVD lens is not necessary when using this camcorder in the usual way.
- Using 8 cm CD lens cleaner could cause this camcorder to be faulty.
- If you have to clean the lens, use a Hitachi Maxell cleaner that is exclusively for 8 cm DVD discs.

**● Cautions on storage****Do not leave the camcorder in a place where the temperature is very high for a long period of time.**

- The temperature on beach sand or inside a closed vehicle or trunk can become very high in a hot season. If you leave the camcorder in such a place, it could malfunction or the case could be damaged. Also, do not expose the camcorder to direct sunlight or place it near any fire or heater.
- Leaving the battery attached or storing it at high temperature could shorten its life. Detach the battery from the camcorder and store it in a cool place.

**Do not store the camcorder in a place where the humidity is high or in a dusty place.**

- Dust entering the camcorder could cause malfunctions. If the humidity is high, the lens could be moldy, and the camcorder could become inoperable. It is recommended that you put the camcorder with desiccant in a box when storing it in a closet, etc.

**Do not store the camcorder in a place subject to strong magnetism or intense vibrations.**

- This could cause malfunctions.

**● Cleaning**

**Be sure to set the power switch to “OFF” before cleaning the camcorder.**

**Cleaning the LCD monitor**

- Wipe dirt off using a lightly moistened soft cloth first, then wipe again using a soft dry cloth. When cleaning the LCD monitor, be careful not to use force, scratch it, or subject it to impact. Doing such could cause a defect in the LCD monitor, result in display unevenness, or damage the LCD monitor.

**Cleaning the lens**

- Use dry, soft cloth to wipe dirt off.

## **Cleaning the surface of the camcorder**

- Do not wipe the surface of the camcorder hard with any foreign object, such as grit adhering to the camcorder, and do not use rough fabrics to clean the surface of the camcorder. Doing so could scratch it.
- Use soft cloth to gently wipe dirt off the surface of the camcorder.

## **Do not use benzene or thinner to clean the surface of the camcorder.**

- The coating of the case could peel off or the case could deteriorate. Wipe off dirt on the case with a soft cloth which has been completely wrung out. When using chemical cleaning cloth, follow instructions for use.

## **● Handling HDD/discs**

### **Using HDD/discs**

- Do not do the following when the ACCESS/PC indicator is lit:
  - shake or subject the camcorder to impacts, or open/close the LCD monitor
  - cut the power, or remove the battery or AC adapter
  - remove the recording media.As the ACCESS/PC indicator will remain lit for a while after concluding recording, please continue to observe the above precautions while the indicator is lit.
- While using HDD/DVD, if the power is cut accidentally while the ACCESS/PC indicator is lit or flashing, connect the AC adapter and then turn on the power again. When using a DVD, turn the power back on while the DVD is loaded in the camcorder. The HDD/DVD will be restored. (p.148)
- Use a DVD which is not dirty, scratched, or warped.
- A Hitachi Maxell DVD is recommended.
- If there is concern that the camcorder may be subjected to large vibrations or impact during transport, remove the DVD and protect the camcorder using soft protective materials.
- Be careful when removing the disc since the metal of removal slot of camcorder, and disc itself, may be hot.

### **Disc cleaning**

- Use a soft cleaning cloth to lightly wipe off any dirt adhering to the disc as shown in the figure. Do not wipe the disc with force: Doing so could cause scratches. Never use solvent (thinner, water, antistat or detergent) for cleaning.

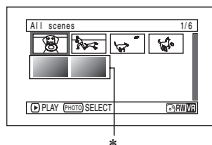
### **Storing discs**

- If the camcorder is not used for long periods of time, remove the disc from the camcorder.
- When storing disc, replace it in the plastic case in which it was purchased.
- Be careful that no condensation occurs on disc.
- Do not place disc in following places:
  - **Direct sunlight for a long time**
  - **Where humidity is high or in dusty place**
  - **Where there is heat from a heater, etc.**

If the above countermeasures are not taken, the following symptoms may occur:






- Block noise in playback image, momentary stop of playback image
- Sound interrupted during playback, or abnormal sound
- Blue thumbnail display\* (Fig. 1)
- Disc cannot correctly be recognized
- Disc cannot be initialized
- Delay between video and audio
- A recording of one scene may be divided into plural scenes, or a portion of a scene may not be recorded
- Recording/Playback is not possible

Fig. 1



Block noise

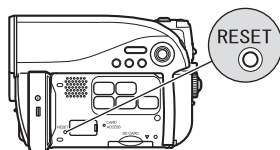
### Note when transferring this camcorder or discarding discs and SD memory cards

- The "Format" function on this camcorder will only change the file control information. It will not completely delete the data in the built-in hard disk and your personal data could leak out. To prevent the data from leaking out, execute complete deletion of the HDD following the procedures below.
  - 1 While the camcorder is in HDD record pause mode, press , then press **MENU**.
  - 2 Press  to select "HDD Setting", then press .
  - 3 Press  to select "Full Format", then press the confirmation button.
  - 4 Press  to select "YES", and then press the confirmation button to confirm the setting and begin HDD full format.
- "Formatting" or "deletion" using the functions of the camcorder or a PC will change only the file control information. It will not completely delete the data on disc or memory card.
- When transferring or discarding a disc or memory card, it is recommended that you physically destroy it or use deletion exclusive software (generally available) to completely delete the data on it. It is user's responsibility to control the data on disc and memory card.
- Hitachi will not accept any responsibility for leaking of personal data.

## System Reset

If the camcorder does not operate normally, perform “System Reset”. The camcorder may recover to normal. “System Reset” will reset all settings to the factory defaults. The date and time will also be reset. Set the date and time again before using the camcorder.

- 1 Set the power switch to “OFF” to turn the camcorder off.  
Detach the battery or AC adapter/charger.
- 2 Use a fine tipped pen to hold down **RESET** for several seconds.  
All settings will be reset.



### Notes

- Do not press **RESET** with undue force.
- Before pressing **RESET**, be sure to remove the DVD from the camcorder. Pressing **RESET** with a DVD loaded may erase the scenes recorded on the DVD.

### ● List of setting items

Menu item (1st level)	Menu item (2nd level)	Default	Setting method
Camera Functions Setup	Program AE	Auto	p.67
	White Bal.	Auto	p.68
	EIS	On	p.71
	Dig. Zoom	40x	p.62
	MIC. Filter	Off	p.71
	Flash	Auto	p.72
Record Functions Setup	VIDEO mode	FINE	p.75
	Quality	FINE	p.77
	16:9	On	p.75
	Input Source	CAMERA	p.78
	PHOTO Input	Field	p.78
	Self Timer	Off	p.79
	OSD Output	On	p.116
LCD Setup	LCD Adjust		p.60
Date Setup	Date Set	1/1/2008 12:00 AM	p.23
	Date Mode	M/D/Y	p.61
Initial Setup	Beep	On	p.60
	Power Save	Off	p.60
	Record LED	On	p.74
	Language	English	p.22
	Demo Mode	Auto	p.61

- Some items will not appear, depending on the disc or card inserted.



## Major Specifications

Image sensor		1/3-inch interlaced
		Total number of pixels approx. 3,310,000
		Number of effective pixels Movie: approx. 2,180,000 approx. 1,640,000 (WIDE mode) Still: approx. 3,050,000
Lens		F1.8–3.0 $f = 1/4''\text{--}2\text{--}1/2''$ (6.1–61 mm) Filter diameter: 1-1/4" (30.5 mm) Thread pitch: 0.5 mm
Focus		Auto/Manual
Zoom		Optical 10x, with digital zoom added Movie: 10x–240x Still: 10x–40x
Required minimum illumination		In Auto: 24 lx (1/30) In Low Light: 1 lx (1/4)
LCD monitor		2.7-inch color TFT (approx. 120,000 pixels)
Image stabilizer		Electronic type
Self-timer recording		Still recording only
Capacity of built-in HDD		DZ-HS903A: Approx. 30 GB DZ-HS803A: Approx. 8 GB
Recording mode		Movie (with sound) Still (with SD memory card)
Maximum recordable time	HDD	DZ-HS903A: Approx. 7 hours (XTRA)/Approx. 11 hours (FINE)/ Approx. 23 hours (STD) DZ-HS803A: Approx. 110 minutes (XTRA)/Approx. 3 hours (FINE)/Approx. 6 hours (STD)
	DVD (per side)	Approx. 18 minutes (XTRA)/Approx. 30 minutes (FINE)/Approx. 60 minutes (STD)
Maximum number of recordable stills	SD memory card (when using 1 GB card)	Approx. 600 (FINE) External input: Approx. 6000 (FINE) (Varies depending on the picture quality or card type (p.176)).
Movie recording pixels		XTRA/FINE: 720 × 480 STD: 352 × 480

Recording format	DVD-RAM/ DVD-RW (VR mode)	Movie: Conforming to DVD video recording (DVD-VR) format Audio: Dolby Digital
	DVD-RW (VF mode)/ DVD-R	Movie: Conforming to DVD video format Audio: Dolby Digital
	+RW	Movie: DVD+RW video format Audio: Dolby Digital
	Card	Still: Conforming to JPEG 2016 × 1512 pixels External input (DZ-HS903A): 640 × 480 pixels
Recordable discs		8 cm DVD-RAM (conforming to DVD-RAM Ver. 2.1) 8 cm DVD-RW (conforming to DVD-RW Ver. 1.1, 2x speed [2x/1x]) 8 cm DVD-R (conforming to DVD-R for General Ver. 2.0) 8 cm +RW (conforming to +RW Ver. 1.2)
Recordable card		SD memory card (1 GB or less)
Jacks		Video/audio input/output × 1 (DZ-HS903A), Video/audio output × 1 (DZ-HS803A), USB terminal (connected to PC USB port) × 1
Battery system		Lithium-ion
Power consumption		When recording to a DVD-RAM in FINE mode Approx. 5.5 W
Dimensions (W × H × D) (including the provided battery pack, excluding hand strap)		Approx. 2-7/8" × 3-5/8" × 5-1/2" (70 × 89 × 137 mm)
Operating temperature (humidity)		32 – 104°F (0 – 40°C) (less than 80%) 32 – 86°F (0 – 30°C) when connected to a PC
Allowable operating altitude (when using HDD)		9,842 feet (3,000 m) or less
Weight		DZ-HS903A: Approx. 490 g (without battery pack nor disc) DZ-HS803A: Approx. 450 g (without battery pack nor disc)
Total weight when recording		DZ-HS903A: Approx. 565 g (When using the battery pack DZ-BP14S) DZ-HS803A: Approx. 525 g (When using the battery pack DZ-BP14S)
Provided accessories		AC adapter/charger, Battery pack, AV/S cable, Infrared remote control, Lithium battery for remote control, Lens cap and lens cap string, Power cable, DC power cord, Software CD-ROM, USB cable, Instruction manual

\* Specifications are subject to change without notice for quality improvement.

## Storage capacity of HDD/DVD/Card

### • Recordable time on HDD\*1

Recording quality	DZ-HS903A	DZ-HS803A
XTRA	Approx. 7 hours*2	Approx. 1 hour 50 minutes*2
FINE	Approx. 11 hours*3	Approx. 3 hours*3
STD	Approx. 23 hours*4	Approx. 6 hours*4

### • Recordable time on DVD

Movie recordable time on one DVD (on single side) (when recording only movies)

Recording quality	Movie recordable time
XTRA	Approx. 18 minutes*2
FINE	Approx. 30 minutes*3
STD	Approx. 60 minutes*4

\*1: After recording continuously for 9 hours in HDD mode, the camcorder will automatically stop recording. After approximately one minute, it will automatically restart recording. (No scene will be recorded during this pause in recording.) As a result of this, multiple thumbnails will appear for this recording. (DZ-HS903A)

\*2: Variable bit recording (recording of more than 7 hours (DZ-HS903A)/1 hour 50 minutes (DZ-HS803A) on the HDD or more than 18 minutes on a DVD may be possible as the transfer rate varies automatically between approx. 3 - 10 Mbps)

\*3: Constant bit rate: Approx. 6 Mbps

\*4: Constant bit rate: Approx. 3 Mbps

#### Note

If recording is performed in XTRA mode within high temperature environments, the image quality may be degraded to a FINE equivalent.

• **Maximum number of scenes that can be recorded/dubbed on HDD/DVD**

Recording media	Maximum number of scenes
HDD*1	999*3
DVD-RAM*2/DVD-RW*2	999*3
DVD-R*2	930
+RW*2	254

\*1: Recording only

\*2: Per disc (one side)

\*3: Combining scenes will not increase the remaining number of recordable scenes.

If there are combined scenes, the maximum number of scenes in the table may not be the same as the actual maximum number of scenes that can be recorded/dubbed.

• **Maximum number of programs that can be recorded/dubbed on HDD/DVD**

Recording media	Maximum number of dates
HDD*1	99
DVD-RAM*2/DVD-RW*2	99
+RW*2	49

\*1: Recording only

\*2: Per disc (one side)

• **SD memory cards of various capacities and recordable number of stills**

(Input Source: CAMERA)

Still picture quality Capacity	FINE	NORM	ECO
32 MB	Approx. 18	Approx. 24	Approx. 37
64 MB	Approx. 38	Approx. 50	Approx. 75
128 MB	Approx. 75	Approx. 100	Approx. 150
256 MB	Approx. 150	Approx. 200	Approx. 300
512 MB	Approx. 300	Approx. 400	Approx. 600
1 GB	Approx. 600	Approx. 800	Approx. 1200

(Numbers are approximate standard.)

**(Input Source: LINE) (DZ-HS903A)**

Capacity \ Still picture quality	FINE	NORM	ECO
32 MB	Approx. 180	Approx. 240	Approx. 370
64 MB	Approx. 380	Approx. 500	Approx. 750
128 MB	Approx. 750	Approx. 1,000	Approx. 1,500
256 MB	Approx. 1,500	Approx. 2,000	Approx. 3,000
512 MB	Approx. 3,000	Approx. 4,000	Approx. 6,000
1 GB	Approx. 6,000	Approx. 8,000	Approx. 12,000

(Numbers are approximate standard.)

**• Still picture size and quality**

The following table shows the picture quality and the corresponding file size of a still picture (JPEG) when you are using a card.

Picture quality	File size		Usage
	Input Source: CAMERA	Input Source: LINE (DZ-HS903A)	
FINE	Approx. 1.6 MB	Approx. 160 KB	High quality
NORM	Approx. 1.2 MB	Approx. 120 KB	Normal quality
ECO	Approx. 0.8 MB	Approx. 80 KB	High quantity (lower quality)

**Note**

Stills cannot be recorded on HDD/DVD.

## Glossary

### Audio feedback

A screeching noise which may be produced when the camcorder is connected to a TV or speakers. To prevent the noise, keep a distance between the camcorder and the TV or speakers, or turn off the volume of the connected device.

### Double-sided disc

A disc which allows recording on both sides.

### Finalize

The process of enabling you to play back DVD-RW (VF mode)/DVD-R recorded on this camcorder using other DVD recorders/players.

### Formatting

The process of preparing a disc for use by creating an empty file system. This is also known as initializing a disc.

### Medium/Media

The built-in HDD, various types of DVD discs and SD memory card are described as media (or medium when singular) and can be recorded to.

### NTSC

NTSC is one of the standard color television systems.

NTSC is in use in the United States, Japan, Taiwan, South Korea, the Philippines, Central and South America, and some other countries.

### PAL

PAL is one of the standard color television systems.

PAL is in use in Europe, China, and some other countries.

### SD memory card

A memory card standard for recording images. This camcorder allows for recording still images to SD memory card.

### Single-sided disc

A disc which allows recording on one side only.

### VF (Video) mode

One of two modes for using a DVD-RW disc.

You need to finalize a DVD-RW disc in VF mode before playing it back on another device. After finalizing, you cannot make additional recordings on the DVD-RW disc, regardless of its free space. The advantage of VF mode is that it is highly compatible with other DVD players.

### VR mode

One of two modes for using a DVD-RW disc.

The advantage of VR mode is that you can edit (split, delete, and combine) movies using the camcorder, and, by deleting unnecessary scenes, you can free up space for more recording.

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## To Order in the United States

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---

### **DECLARATION OF CONFORMITY**

with FCC Rules for Electromagnetic Compatibility

Products: CAMCORDER  
Models: DZ-HS903A/DZ-HS803A  
Trade Name: HITACHI

This device complies with part 15 of FCC Rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party: Hitachi Home Electronics (America), Inc.  
900 Hitachi Way  
Chula Vista, CA 91914-3556 U.S.A  
Tel: 1-800-448-2244



## Warranty Limitations

The Limited Warranty provided by Hitachi does not cover:

- A. Cabinet (exterior finish items), Battery packs, Accessories, Lens Cleanings, Head Cleanings, DVD Disc Damage, Video Tape Damage, or Software Modifications.
- B. Any defect, malfunction, or failure caused by or resulting from improper service, maintenance, repair, use of DVD Cleaning Disks, use of Video Cleaning Cassettes, software, or from abuse, neglect, accident or any other cause beyond the control of Hitachi.
- C. Unpacking, set-up or installation, adjustment of customer operated controls, user instruction.
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Attach your sales receipt to this card.

### *DVD, VCR, Camcorder Products, AC Adapter Charger Limited Warranty Registration*

(for your records)

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Serial No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Dealer Name \_\_\_\_\_

Dealer Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

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- **VCR Products**
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- **90 DAYS LABOR (Carry-in)**
- **1 YEAR PARTS (Except Battery)**

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